

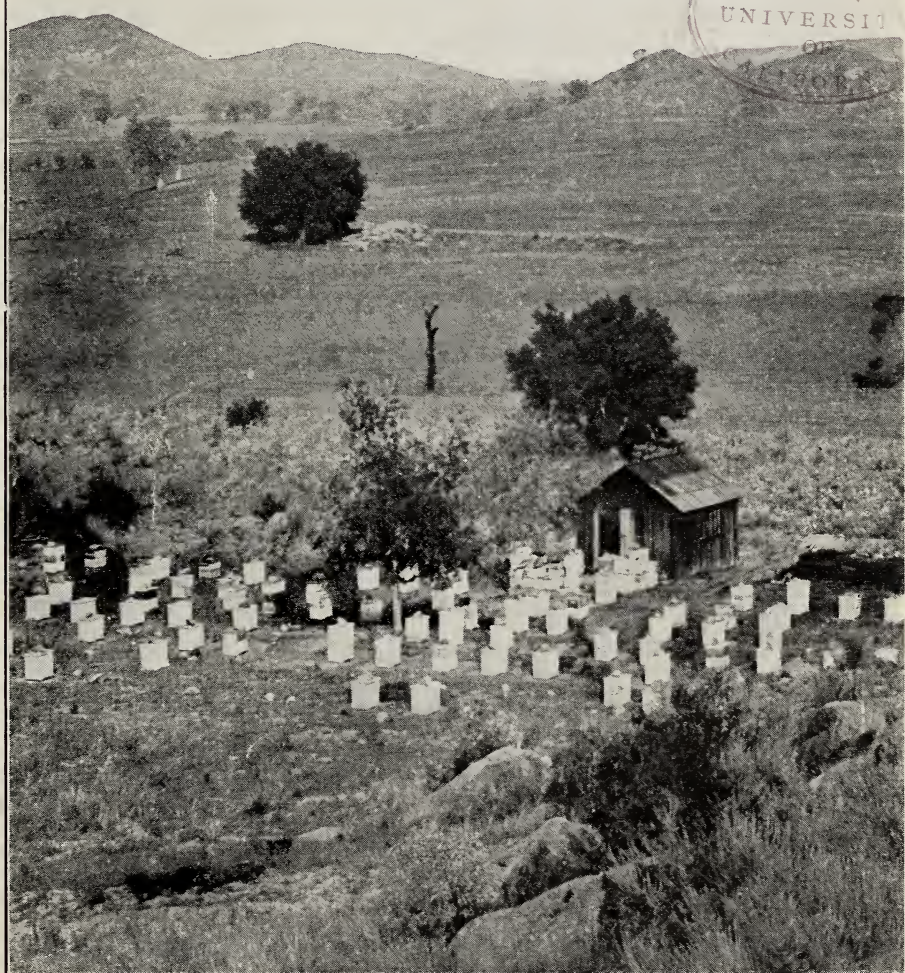
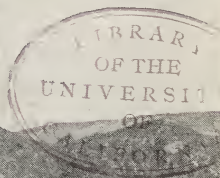
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SEP 12 1916

# Gleanings in Bee Culture





# Special Bargains in Shipping-cases

With the bountiful crop of honey being gathered there will be need for shipping-cases in which to place the comb honey for market. During the past few years we have made several changes in the style of our cases, and have some stock of styles formerly made, but not now listed in our catalog. There are some people who prefer the older styles to the later ones, and there may be others who would use the older styles if bought at a low price, and prompt delivery were made. We have on hand the following stock which we offer, to close out and subject to previous sale, at the special prices here named:

- 8 crates of 50 each, 9½-inch, 2-row, at \$4.00 per crate.
- 19 crates of 50 each, 10-inch, 2-row, at \$4.00 per crate.
- 15 crates of 50 each, 6¼-in. 3-row, at \$4.00 per crate.
- 56 crates of 50 each, 12-lb. cases, at \$4.00 per crate.
- All of the above have either 2 or 3 inch glass, and take 12 sections 4¼x4¼x1½ plain.

- There are also for the same size section, packed 10 in a crate:
- 10 crates of 10 each, 9½-in. 2-row at 85 cts. per crate.
  - 4 crates of 10 each, 6¼-inch, 2-row, at 85 cts. per crate.
  - 4 crates of 10 each, 10-inch, 2-row, at 85 cts. per crate.

- For the 4¼x1½ beeway section we have:
- 5 crates of 50 each, 15¼-inch 2-row, for 15 sections, at \$4.50 per crate.

- 8 crates of 10 each, 15¼-inch, 2-row, for 15 sections, at 95 cts. per crate.
- 14 crates of 50 each, 11½-inch, 2-row, for 12 sections, at \$4.00 per crate.
- 6 crates of 10 each, 12-lb. safety cases with cartons at \$1.20 per crate.
- 3 crates of 10 each, 8-inch, 3-row, for 12 sections, at 85 cts. per crate.
- 2 crates of 10 each, 12-inch, 4-row, for 24 sections, at \$1.80 per crate.

- For 24 sections, 4¼x1½ plain:
- 1 crate of 25 each, 9½-inch, 4-row, at \$4.00 per crate.
  - 2 crates of 10 each, 9½-inch, 4-row, at \$1.75 per crate.
  - 3 crates of 10 each, 10-inch, 4-row, at \$1.75 per crate.

- For 12 sections 4x5x1½:
- 26 crates of 50 each, 3-row cases, at \$4.00 per crate.
  - 1 crate of 50 each, 3-row, for 15 sections, at \$4.00 per crate.

## ADDITIONAL SHIPPING-CASES AT BRANCH OFFICES.

### At Washington, D. C.

- 3 cases, 10 each, 12-lb. cases for 4¼x1½ sections, at 85 cts. each.
- 7 cases, 10 each, 12-lb. cases for 4¼x1½ sections, at 85 cts. each.
- 3 crates, 50 each, 12-lb. cases for 3½x5x1½-inch sections at \$4.00 per crate.

### At Mechanic Falls, Me.

- 5 packages, 10 each, 12-lb. safety-cases for 4¼x1½ sections, including safety carton, at \$1.20 per crate.
- 2 crates, 10 each, 12-lb. cases for 4¼x1½ sections at 85 cts. per crate.
- 3 crates, 10 each, 12-lb. cases for 3½x5x1½ sections at 85 cts. per crate.
- 2 crates, 10 each, 12-lb. cases for 4x5x1½ sections at 85 cts. per crate.
- 2 crates of 10 each, 12-lb. safety cases for 4x5x1½ sections, including safety cartons. \$1.20 per crate.

### At New York Branch.

- 1 crate 50 2-row and 1 crate of 50 3-row 12-lb. cases for 4¼x1½ sections at \$4.00 per crate.
- 1 crate 50 15-lb. cases for 4x5x1½ sections, at \$4.00 per crate.

### At Philadelphia Branch.

- 8 crates, 50 each, 12-lb. cases for 4¼x1½ sections at \$4.00 per crate.
- 10 crates of 10 each, same, at 85 cts. each.
- 13 crates, 50 each, 12-lb. cases for 4¼x1½ sections at \$4.00 per crate.
- 9 crates, 10 each, same, at 85 cts. per crate.
- 4 crates, 50 each, 24-lb. cases for 4¼x1½ sections at \$8.00 per crate.
- 4 crates, 10 each, same, at \$1.70 per crate.
- 4 crates, 50 each, 16-lb. cases for 4¼x1½ sections at \$4.50 per crate.
- 1 crate of 10 12-lb. cases for 4x5x1½, at 85 cts.
- 7 crates, 50 each, 12-lb. cases for 3½x5x1½ sections, at \$4.00 per crate.
- 5 crates, 10 each, same, at 85 cts. per crate.

We also offer the following glass jars, to close out at special prices, subject to previous sale.

### At Mechanic Falls, Me.

- 5 gross ½-lb. square jars, with corks, at \$4.00 per gross.
- 29 cases of 2 dozen each, Simplex or Federal 1-lb. jars at \$1.10 per case.

### At Philadelphia Branch.

- 1 gross ¼-lb. square jars with cork, at \$3.25.
- 10 cases ¼-lb. square jars with cork, 75 cts. case of 2 dozen.
- 1 gross ½-lb. square jars with cork, at \$4.00.
- 8 cases ½-lb. square jars with cork, 90 cts. case of 2 dozen.
- 4 gross 1-lb. square jars with cork, \$5.00.
- 3 cases 1-lb. square jars with cork, \$1.10 case of 2 dozen.
- 5 gross 2-lb. square jars with cork, at \$7.50.
- 37 cases 1-lb. Simplex jars, 2 dozen per case, at \$1.30.

### At New York Branch.

- 4 bbls. of 7-oz. tumblers, 24 doz. to barrel, at \$5.00 per barrel.
- 11 gross of 2-lb. square jars with cork, 6 dozen to case at \$7.50 per gross, \$4.00 per case.
- 13 cases of 2 dozen each, ½-lb. square jars with cork, at 90 cts. per case.

### At Washington, D. C.

- 1 bbl. 12 dozen 1-lb. No. 25 jars at \$5.00 per bbl.
  - 3 bbl. 12 dozen 1-lb. Simplex jars at \$5.25 per bbl.
  - 2 crates 12 dozen 1-lb. Simplex jars at \$5.00 per crate.
  - 1 case 2 dozen 1-lb. Simplex jars at \$1.10 per case.
- These are fine for exhibition purposes.
- 4 dozen ½-lb. Hersher jars with nickel tops at 50 cts. a dozen.
  - 11 doz. 1-lb. square Hersher jars with nickel tops at 65 cts. a dozen.

THE A. I. ROOT COMPANY, Medina, Ohio



# SHIPPING-CASES FOR COMB HONEY

Don't make the mistake of putting a fine lot of section honey in poor shipping-cases. It will lower the price to you and damage your future sales. "Falcon" cases are A No. 1, and will be a credit to any crop of honey. Prices are as follows:

## Shipping-cases in Flat, without Glass.

No. 1....holding 24 sections, 4 1/4 x 1 1/2, showing 4.....	10.	\$2.00;	100,	\$18.00
No. 3....holding 12 sections, 4 1/4 x 1 1/2, showing 3.....	10.	\$1.30;	100,	\$11.00
No. 1 1/2....holding 24 sections, 4 1/4 x 1 1/2, showing 4.....	10.	\$1.90;	100,	\$17.00
No. 6....holding 24 sections, 3 3/8 x 5 x 1 1/2, showing 4.....	10.	\$1.80;	100,	\$16.00
No. 8....holding 24 sections, 4 x 5 x 1 1/2, showing 4.....	10.	\$1.80;	100,	\$16.00

## Shipping-cases with Glass.

		with 3-inch glass		with 2-inch glass
No. 11....Same as No. 1.....	Nailed, 35c; in flat, 1, 25c; 10,	\$2.30;	100,	\$21.00.....
No. 13....Same as No. 3.....	Nailed, 22c; in flat, 1, 15c; 10,	\$1.40;	100,	\$12.50.....
No. 11 1/2....Same as No. 1 1/2.....	Nailed, 35c; in flat, 1, 25c; 10,	\$2.20;	100,	\$20.00.....
No. 16....Same as No. 6.....	Nailed, 30c; in flat, 1, 22c; 10,	\$2.10;	100,	\$19.00.....
No. 18....Same as No. 8.....	Nailed, 30c; in flat, 1, 22c; 10,	\$2.10;	100,	\$19.00.....

Red Catalog, postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

**W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK**

where the good beehives come from.

## HONEY GRADING RULES

### GRADING RULES OF THE A. I. ROOT CO., MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

#### COMB HONEY.

**Extra Fancy.**—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

**Fancy.**—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

**No. 1.**—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

**No. 2.**—Combs not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than

60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

#### CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

#### EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

#### EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, COL.,  
FEBRUARY 6, 1915.

#### COMB HONEY.

**FANCY.**—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13 1/2 gross. The top of each section in this grade must be stamped, "Net weight not less than 12 1/2 oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

**NUMBER ONE.**—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish and shall be a true representation of the contents of the case.

**NUMBER TWO.**—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

*Comb honey that is not permitted in shipping grades*

Honey packed in second-hand cases.  
Honey in badly stained or mildewed sections.  
Honey showing signs of granulation.  
Leaking, injured, or patched-up sections.

Sections containing honey-dew.  
Sections with more than 50 uncapped cells, or a less number of empty cells.

Sections weighing less than the minimum weight.  
All such honey should be disposed of in the home market.

#### EXTRACTED HONEY.

This must be thoroly ripened, weighing not less than 12 pounds per gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A" should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

#### STRAINED HONEY.

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

*Honey not permitted in shipping grades.*

Extracted honey packed in second-hand cans.  
Unripe or fermenting honey weighing less than 12 lbs. per gallon.  
Honey contaminated by excessive use of smoke.  
Honey contaminated by honey-dew.  
Honey not properly strained.

## YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

### We Remit the Day Shipments Arrive.

We are in the market to buy **FANCY AND NUMBER ONE WHITE COMB HONEY**, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.

A few cars of California Water White Sage.

A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

**THE FRED. W. MUTH CO.**  
"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.



# QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . . Over 20 Years a Breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested....	1.00	5.00	9.00	.75	4.00	7.00
Tested .....	1.50	8.00	15.00	1.00	5.00	9.00
Select tested .....	2.00	10.00	18.00	1.50	8.00	15.00
2 comb nuclei .....	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei .....	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colonies ..	6.00	30.00		5.00	25.00	
10-frame colonies ..	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees ..	1.50	7.00		1.00	6.00	
1-lb. pkg. bees.....	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

Queens from now on are mailed promptly by return mail.

Free circular and testimonials.

H. G. Quirin-the-Queen-breeder  
Bellevue, Ohio

# Golden and Three-band Italian Queens . . . 45c

We guarantee them to be as good as money can buy. Our breeders are of the very best, our methods are the best known. If they are not satisfactory you can get your money back for the asking. Where can you get any more for big money? Virgins, 25 cts.; untested, one, 45 cts.; 12, \$5.00; 100, \$40.00; tested queens, 75 cts. Special offer to members of association thru their secretary. Get your secretary to write us. Queens we are offering you are choice. The Italian strain of bees have proven themselves able to resist foul brood to a greater degree than any other strain, and they are, therefore, the strain to buy if you have foul brood in your locality.

We also have breeders direct from Dr. Miller and can furnish queens of his strain, which is the best in the world. Start right, get some of the best in the world for the foundation of your strain.

To inquirers:—I am rearing no queens for sale, but am keeping The Stover Apiaries supplied with breeders from my best stock; and from thence you can obtain the same queens you could get directly from me.

C. C. Miller.

Marengo, Ill., March 1, 1916.

Prices of Dr. Miller's strain: Virgins, 50 cts. each; 12 for \$5.00; Untested 60 cts.; 12 for \$6.00. Tested, \$2.00; Select Tested, \$3.50; Breeders, \$5.00 to \$10.00. Will replace inferior queens.

Capacity over 2000 per month. Safe arrival and satisfaction guaranteed.

The Stover Apiaries  
Mayhew, Miss.

# WARDELL STRAIN OF ITALIANS

Descendents from the Famous Root \$200 Queen

I was head queen-breeder for The A. I. Root Co. for a number of years, and during that time I originated the famous \$200 ROOT BREEDER whose stock has gone the world around. These bees for GENTLENESS, GENERAL VIGOR, and HONEY-GATHERING qualities have ESTABLISHED A REPUTATION. I have been for years developing and perfecting this same strain. While my prices may be higher than some others, my queens are cheap in comparison with their value.

Untested . . . . .	during June, \$1.50; in July, August, and September, \$1.00
Select Untested . . . . .	1.75 " " " 1.25
Tested . . . . .	2.50 " " " 2.00
Select Tested . . . . .	3.50 " " " 3.00

Prompt delivery assured.  
Address all orders to

F. J. Wardell, Uhrichsville, Ohio

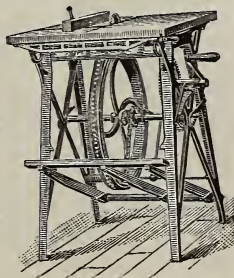
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Hand and Foot Power  
Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JOHN BARNES CO.  
545 Ruby St.  
ROCKFORD, ILLINOIS



"THE WHOLE WIDE WORLD FOR JESUS."

Tell Mr. Root that I am with him on the saloons. Our township is dry. I should like to see the United States go dry, and not allow any whisky to enter its boundary.

EVERT HELLER.

Sparksville, Ind., June 12.

KIND WORD FROM A B C AND X Y Z SCHOLAR.

My bees are doing fine. I bought 20 colonies in April and divided them. I now have 35 and they are as lively a bunch as you ever saw. I never had bees before, nor even saw the inside of a hive with bees in it, but that "X Y Z" book "got me by" all right so far. I really believe I have it almost committed to memory.

Wauseon, O., May 27.

DR. A. P. BETTS.



# Gleanings in Bee Culture

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## Contents for September 1, 1916

EDITORIAL .....	773	Bees Guided by Scent .....	793
King of Honolulu .....	773	Swarms Drifting from Box Hives .....	793
Marking Net Weight .....	773, 810	Oswald St. John Gilbert .....	795
Excluding Queens from Mails .....	773	Bee-trees with Top Ventilation .....	797
Examination of Bee Assistants .....	774	Sections, 2-lb., in Standard Frames .....	798
Honey-crop Conditions .....	774	Foundation, Need of .....	799
H. A. Surface .....	774	Convention at Ontario College .....	800
Diagnosing Colonies .....	775	Introducing with Honey .....	800
Comb Honey, Eating Quality of .....	776	Job's Friends, Advice of .....	801
STRAY STRAWS .....	777	Chicago Convention .....	803
Queens, Daubing to Introduce .....	777	Swarm Prevention in Out-apiaries .....	804
Swarming, Cause of .....	777	Sugar-fed Honey .....	805
DIXIE BEE .....	779	Season in South Florida .....	806
BEEKEEPING IN CALIFORNIA .....	779	Honey-plants of Paraguay .....	807
Foul Brood in California .....	779	HEADS OF GRAIN .....	809
Skunks, To Destroy .....	779	Bees Cleaning Cappings .....	809
NOTES FROM CANADA .....	780	Bees, Ownership of .....	810
Crop of Honey in Canada .....	780	Field Day in Massachusetts .....	811
BEEKEEPING AMONG THE ROCKIES .....	781	Workers, why Dwarfed .....	811
Supering and Desupering .....	781	Cleaning Grooves in Frames .....	811
CONVERSATIONS WITH DOOLITTLE .....	782	OUR HOMES .....	812
Middlemen, Use of .....	782	Electric Autos .....	811
GENERAL CORRESPONDENCE .....	783	Civic Reform Union .....	815
Isle of Wight Disease .....	783	Florida, Advantage of .....	815
Honey-money Makers .....	784	HIGH-PRESSURE GARDENING .....	816
Banker and His Bees .....	788	Mulching with Sweet Clover .....	816
Management of Outyards .....	789	Dust Mulch in Drouth .....	816
Honey Production .....	790	TEMPERANCE .....	817

## HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

CLEVELAND.—There is a little old honey still in market at \$2.50 to \$3.25 per case, according to quality and condition. New honey, fancy grade, is selling slowly at \$4.00. Demand is light for all grades. C. CHANDLER'S SONS.

Cleveland, Aug. 24.

ALBANY.—Weather here has been so hot during the past ten days there has been no demand for honey, and but very little offered. A few local producers have appeared in city public market with white comb honey, selling it in a retail way at 15 cts. a comb. No established prices yet. White honey is a good crop. Buckwheat also is promising at present. CHARLES MACCULLOCH.

Albany, Aug. 25.

DENVER.—We are selling new crop comb honey in the local market at the following prices: Fancy, per case of 24 sections, \$3.11; No. 1, \$2.97; and No. 2, \$2.85; white extracted, 8½ to 8¾ cts. per lb.; light amber, 8 to 8¾ cts. per lb., and amber 7 to 8 cts. per lb. We pay 26 cts. per lb. in cash and 28 cts. per lb. in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.  
Denver, Aug. 26. FRANK RAUCHFUSS, Mgr.

KANSAS CITY.—On account of the extremely dry weather the honey-flow has stopped; but there is still quite a surplus of new comb honey on the market. Strictly No. 1 white comb honey, 24-section cases, is selling at \$3.00 to \$3.25 per case; No. 1 amber comb honey at \$2.85, and No. 2 amber comb honey at \$2.70. Strictly fancy white extracted honey is selling at 8 to 8½, with a good demand. The demand for comb honey is still only fairly good.

C. C. CLEMONS PRODUCE CO.

Kansas City, Aug. 15.

PHOENIX.—The bulk of our alfalfa and light-amber honey has been moved at 5½ to 5¾ cts. per lb., on board cars, with a dollar rate to common eastern points. Mesquite was a very light crop, but of excellent quality and would have sold readily at \$6.50 F. O. B. had there been a carload at any given point. Some 10 cars of light amber have been sold up to date at from 5½ to 5¾. Beeswax brings 26 to 27 cents here. At present the indications are favorable for a good fall crop.

Phoenix, Aug. 23. WM. LOSSING.

CHICAGO.—The new honey from the harvest of 1916 is appearing on the market. No sales have been reported. Comb is being held at 13 cts. per lb. for the best grade. Owing to the warm weather that has prevailed during the past four weeks, that would have a tendency to prevent any activity, so that at this time it is difficult to diagnose the conditions, especially as to what the price is going to be this coming month. Yet indications are that there is not going to be much, if any, advance over that which has prevailed for the product of 1915, a goodly quantity of which is yet unmarketed. Extracted also remains quiet at from 7 to 8; white and ambers, from 5 to 7. Beeswax is steady at from 28 to 30, according to color and cleanliness.

Chicago, Aug. 17. R. A. BURNETT & CO.

## BANKING BY MAIL AT 4%

### Safety and Convenience

Among the advantages that modern methods of safe transportation have brought to the homes of the people in all parts of the country, none is of more genuine value than Banking by Mail.

No matter where you live you can obtain safety, privacy, and liberal interest for your funds by depositing them with this strong bank.

Money can be sent by postoffice or express money order, check, draft, or the currency in a registered letter. \$1.00 will open an account.

## THE SAVINGS DEPOSIT BANK CO. MEDINA, OHIO

A.T. SPITZER, Pres.  
E.R. ROOT, Vice-Pres.  
E.B. SPITZER, Cashier

ASSETS OVER ONE MILLION DOLLARS

## FORCED TO SELL.....

Forty colonies of bees in Buckeye hives, in good condition; supers full white-clover honey; unextracted; full equipment; Root automatic extractor No. 27 BP. Will consider letting out on shares to an experienced beekeeper. Write for particulars.

H. C. Young, 77 Ea. Seneca St., Buffalo, N. Y.

I have been reading GLEANINGS since 1898. An old subscriber boarded with me who took GLEANINGS when Blue Eyes was born, and he received a year's subscription free that year. He had every copy in book form. The highest praise I can send you is, each one grew better.

Star, Oklahoma.

MRS. ONA FOLIART.

# Preparedness!

Your success this season, Mr. Beekeeper, depends on being ready. You need to buy your supplies now.

## Root's Goods mean Real Preparedness.

We sell them in Michigan. Send for catalog. Beeswax wanted---

---

M. H. Hunt & Son, 510 Cedar St. N., Lansing, Mich.

## "If Goods are Wanted Quick Send to Indianapolis"

---

Indications just now are very favorable for a good season; but we are, of course, at the mercy of the weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

We carry Root's goods and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house.

If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods.

Promptness in filling orders is the motto here. We also give small orders the same careful attention that are given to large orders.

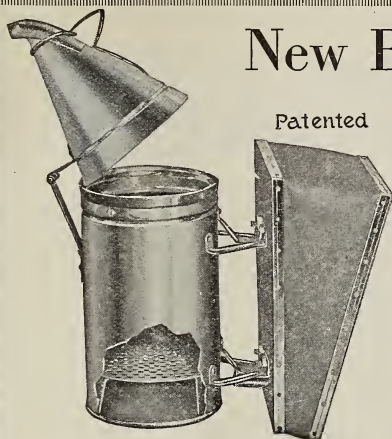
Let us have the pleasure of mailing you our free catalog.

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Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue





# New Bingham Bee Smoker

Patented

has been on the market nearly forty years, and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey-producers of the world. For sale direct or by all dealers in beekeepers' supplies.

Smoke Engine, 4-inch stove..... \$1.25  
 Doctor, 3 1/2-inch stove ..... .85  
 Two above sizes in copper, 50 cts. extra.  
 Conqueror, 3-inch stove ..... .75  
 Little Wonder, 2 1/2-inch stove ..... .50  
 Hinged cover on two larger sizes. Postage extra.

## TIN HONEY-CANS---LOW PRICES

Five-pound friction-top pails, lots of 50 at \$2.75; 100 lots, \$5.20; crates of 203 at \$10.00.

Ten-pound Friction-top pails, lots of 50 at \$4.00; 100 lots, \$7.50; crates of 113 at \$8.80; 565 at \$40.00, F. O. B. Chicago.

Sixty-pound cans, two in a case, 70c per case. Quantity lots, 67c per case; crates of 50 at \$12.00, F. O. B. Chicago or Ohio factory. Prompt shipments are being made at this time.

A. G. WOODMAN COMPANY, Grand Rapids, Michigan

## PENNSYLVANIA BEEKEEPERS


Our 1916 catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

## For New England

Beekeepers, we have everything you need in the way of supplies. Remember we are in the shipping center of New England. Let me send you a new catalog.

H. H. Jepson, 182 Friend St., Boston, Mass.



### BEESWAX WANTED

for manufacture into  
**"SUPERIOR FOUNDATION"**  
 on shares (Weed process)

Our terms assure cheaper foundation  
**SUPERIOR HONEY CO.,** Ogden, Utah  
 Wanted: Extracted honey

## LOS ANGELES HONEY CO.

633 Central Bldg. . . . Los Angeles, Cal.

Buyers and Sellers  
 of Honey and Wax

Write Us for Prices when in the Market

## COLORED BEE-HIVE LABELS



For tacking on to the hives as an aid to the better control of your bees; very durable, visible and attractive. Approved by large, practical bee-raisers. Circular and samples free.

Arthur P. Spiller, Dept. G, Beverly, Mass.

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Send your name for new 1916 catalog.  
 Dept. T, CLEMONS BEE SUPPLY CO.,  
 128 Grand Avenue, Kansas City, Mo.



### 4 MONTHS FOR 10¢

**Trial Subscription** To Fruit and Garden Paper

Tells about planting, pruning, spraying and selling fruit and garden truck.

**Ask Us Your Hard Questions.**

We conduct this department for the special benefit of our subscribers. Experts answer all questions by mail and through the columns of the magazine.

Fruitman and Gardener, 106 Main St. Mt. Vernon, Ia.

## PATENTS

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Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building  
 WASHINGTON, D. C.

## 3 Garden Tools in 1

The **BARKER** Weeder, Mulcher and Cultivator

The only garden tool that successfully, in one operation, kills weeds, and forms a complete soil mulch to hold moisture. "Best Weed Killer Ever Used." A boy with a Barker beats ten men with hoes. Has shovels for deeper cultivation. Self adjusting. Costs little. Write for illustrated folder and special Factory-to-User offer.



**Barker Mfg. Co.**  
 Box 117 David City, Nebr.

# Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873

Issued semi-monthly

## ADVERTISING RATES

Based on 20,000 circulation guaranteed.

Display, per agate line, flat, 15 cts.

Quarter page, \$8.00.

Half page, \$15.00.

Full page, \$30.00.

Outside back cover page, 25 per cent additional.

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Classified, per counted line, flat 25 cts.

(Discounts on classified advertising: 10 per cent on 6 continuous insertions; 15 per cent on 12 continuous insertions; 25 per cent on 24 continuous insertions.)

Cash discount if paid in 10 days, 2 per cent.

Bills payable monthly.

Copy subject to editorial approval.

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THE A. I. ROOT COMPANY, Publishers  
MEDINA, OHIO

## Index to Advertisements

### BANKING BY MAIL

Savings Deposit Bank...703

### BEE SUPPLIES

Clemons Co. ....769  
Dadant & Sons.....772  
Dunkel, E. M.....769  
Falconer, W. T.....768  
Hunt, M. H.....768  
Jepson, H. H.....769  
Lewis, G. B.....772  
Nebel, J.....619  
Pouder, W. S.....768  
Root Co., Syracuse...771  
Stringham, I. J.....820  
Superior Honey Co....769  
Woodman, A. G.....769

### BEES AND QUEENS

Achord, W. D.....cover  
Berry, M. C.....cover  
Caraway, B. M.....cover  
Forehand, W. J.....cover  
Forehand, N.....819

Forehand, L. L.....819  
Leininger, F. S.....819  
Littlefield, W. J.....819  
Moore, J. P.....820  
Penn Co. ....825  
Mott, E. E.....819  
Quirin, H. G.....765  
Robey, L. H.....819  
Stover Apiaries.....765  
Wardell, F. J.....765

### CLASSIFIED ADS.

Bees and Queens.....822  
For Sale .....821  
Honey and Wax Wanted..821  
Honey and Wax for Sale.821  
Patents .....822  
Real Estate .....822  
Wants and Exchanges..822

### HONEY-DEALERS

Los Angeles Honey Co..769  
Muth Co., F. W.....819  
Weber, C. H. W. & Co..771

### LABELS

Spiller, A. P.....769

### LAMPS

Best Light Co. ....820

### MACHINERY

Barnes, W. F. and J....765  
Barker Mfg. Co.....769

### PATENTS

Williamson, C. J.....769

### PUBLICATIONS

Fruitman and Gardener..769  
Guide to Nature.....820

### SPRAY PUMPS

Myers, F. E.....820  
Pratt, B. G.....820

### STOVES

Kalamazoo Stove Co....769

# Wanted---Honey

## Both Comb and Extracted

If comb honey, state grade and how it is put up, and your lowest price delivered Cincinnati.

Extracted honey, mail a fair-sized sample, state how it is put up, and your lowest price delivered Cincinnati.

If prices are right we can use unlimited quantities.

---

C. H. W. Weber & Company, Cincinnati, O.

2146 Central Avenue

# We Were Kept Busy During

## July --- and No Mistake about That

---

All during the month were only at the most three days behind in filling orders. Are now caught up and ready for orders for shipping-cases. If you will be in need of these better get your order in early.

---

F. A. SALISBURY, Syracuse, New York

1631 West Genesee St.



# Nominated by Acclamation Lewis Sections

The kind that does not break in folding

Beekeepers everywhere, no matter what their preference may be for hives or special apparatus, agree that when it comes to sections that

There are no sections like Lewis Sections!

**WHY IS THIS TRUE?** BECAUSE LEWIS SECTIONS are made of Wisconsin basswood—the best material for sections—out of carefully selected white stock. The V groove which allows the sections to fold is scientifically made. LEWIS SECTIONS are polished on both sides and are neatly and accurately packed in a tight wooden box, insuring delivery in good order.

At the same price you pay for other standard makes of sections you get all of the above. The making of Lewis Sections has been under the supervision of a Lewis section expert who "has been at it" for over thirty years. No wonder Lewis Sections are perfect. One of our customers tells us that he has put up (folded) thirty thousand Lewis Sections in a season, and has not found one section in the whole lot that was not perfect. Can we mention any more convincing evidence of quality? Can you say the same of even five hundred of any other make?

**INSIST ON LEWIS SECTIONS. LOOK FOR THE BEEWARE BRAND.**

**G. B. Lewis Company, Watertown, Wisconsin**

Catalog on request giving nearest distributor.

# DO YOU WANT Your Bee Supplies Shipped Promptly?

We carry from four to six carloads of the finest BEEWARE on hand at all times, and can fill your orders without delay. . . . BEE-HIVES, SECTIONS, Shipping-cases, Tin Cans, and all other Bee Supplies; also

## Dadant's Foundation

by return freight, mail, or express

DADANT & SONS, Hamilton, Ill. Dear Sirs:—The box of foundation arrived a few days ago in fine condition. I have kept bees for over thirty years, and have purchased foundation from many firms, and must say that your foundation is the nicest that I have ever used, and I wish to thank you for the prompt shipment and large amount of wax you secured for me.

A. W. DARBY, Alburg, Vt., May 3, 1916.

We have forty years' experience and thousands of satisfied customers. Are you one of them?

## Dadant & Sons, Hamilton, Illinois

# GLEANINGS IN BEE CULTURE

Published by The A. I. Root Co., Medina, Ohio.

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SEPTEMBER 1, 1916

NO. 17

## EDITORIAL

THE beekeepers of Iowa are requested to write to Frank C. Pellett, Atlantic, Ia., or to the A. I. Root Co., Des Moines, for a copy of the inspector's report for 1915.

FIELD meets are getting to be quite the fashion nowadays. In former days there were no meetings of beekeepers except during the winter; and now it is quite the fashion to have summer meetings also. It is well.

### The Alexander-House-Miller Plan for Curing European Foul Brood Indorsed

MR. R. F. HOLTERMANN, in this issue, page 801, introduces a letter from P. W. Stahlman, of West Berne, N. Y., that details a long and varied experience with European foul brood. This letter serves to confirm the findings of E. W. Alexander, S. D. House, and Dr. C. C. Miller on the nature and treatment of this disease.

### The Bee King of Honolulu

WE are glad to make the acquaintance of Mr. Oswald St. John Gilbert, one of the most extensive honey-producers in the world, the "bee king" of Honolulu, and manager of the Sandwich Islands Honey Co. See page 795. Our readers will take pleasure in learning something about this producer. It was with no little pride that we noted that he made his start with the A B C and X Y Z of Bee Culture as his sole guide.

### Importance of Marking the Net Weight on Honey Packages in some States

WE have stated in these columns that while it was not absolutely necessary to mark the net weight on honey-packages, provided the goods are not to be shipped out of the state, and provided, of course,

there was no net-weight law within the state, some states have laws based on the federal law, and some beekeepers are going to run a great risk unless they mark all their sections with the minimum net weight. See what Frank C. Pellett, state bee inspector of Iowa, says:

It would seem that your editorials on the net-weight law are plain enough. However, several Iowa beekeepers have been misled into believing that they do not have to mark the net weight on packages sold at home, but only on those shipped out of the state. You will confer a favor upon your Iowa readers by calling their attention to the fact that the Iowa law is copied after the federal law, and that it is necessary to mark every section of honey as well as every package of the extracted honey with the net weight, even tho it is sold to the next-door neighbor. I understand that similar laws have been enacted in several other states.

Many Iowa beekeepers are laying themselves liable to prosecution because of their neglect to comply with the law in this respect. The fact that laws are not similar in all states has led to much confusion.

FRANK C. PELLETT.

Atlantic, Iowa.

As no one knows whether his honey will be shipped out of the state, he should mark the net weight on the packages, whether there is a law in his own state or not. It is the only safe thing to do.

### Queen-bees in Danger of being Excluded from the Mails

ACCORDING to newspaper reports, Congressman Frank E. Doremus, of Detroit, has introduced a bill into the House of Representatives excluding liquor, poisonous animals, insects, and reptiles from the mails. The bill as drawn would exclude queen-bees and the dozen or so of attendants. There was probably no intention on the part of the author of the bill to ruin a large industry and seriously handicap honey-producers desirous of improving or renewing their stock. While there is but little likelihood that such a bill will pass at this session of Congress, all queen-breeders should write at once to their congressmen, requesting that the bill be modified so far

as it relates to the mailing of queens. A great majority of beekeepers would welcome the exclusion of liquor from the mails.

### Competitive Civil-service Examination for Apicultural Assistants on Sept. 20

THE United States Civil Service Commission announces an open competitive examination for apicultural assistants for men only, on Sept. 20. The salaries will be \$1400 and \$1600 a year. Those interested should write to the United States Civil Service Commissioner, Washington, D. C., for particulars. These apicultural assistants are desired in connection with the extension work about to be undertaken in the South. Competitors will be examined on the following subjects:

<i>Subjects.</i>	<i>Credits.</i>
1. Practical questions .....	40
2. Thesis, to be delivered to the examiner on the day of the examination.....	20
3. Education and experience .....	40
<b>TOTAL .....</b>	<b>100</b>

Two years of experience with at least 100 colonies, or two years' experience in apicultural inspection, or two years' experience in teaching bee culture, are pre-requisites for the consideration of this subject.

### Honey-crop Conditions and Prices

THERE is not much new to add to what we have already given on page 710 of our issue for Aug. 15. The drouth has continued, altho it was broken by some heavy rains that seemed to be quite general according to the U. S. weather maps. This drouth, however, was severe enough to check the clovers—alsike and white. Had the rains continued, the crop of clover honey would have smashed all records. As it is, it will greatly exceed last year; but the very drouth that checked the alsike and white has stimulated the second growth of red clover. When the weather is dry enough, the corolla tubes are short enough to enable the honeybee to get the nectar. In localities where red clover is grown largely, the shortage in white clover will be made up slightly of red-clover honey. There has been almost no basswood honey this year.

The reports from the West are still very meager. The few reports show the yield in the West has not been as heavy as in the East. There has been a large amount of honey, both comb and extracted, left over from last year in many of the warehouses of the commission merchants. Whether this will make up for the shortage in alfalfa

we are unable to say. Prices on mountain sage and orange honey are firm in California. On Eastern clover the prices will be easier than last year. Comb honey in general, where it is selling at all, is selling for less than last year's prices; for be it remembered there was an enormous production of comb honey in 1915, thousands of pounds of which were carried over into this year. We warned producers not to run so much to comb honey this year. It is easier and safer to carry over extracted than comb.

Early in the season the market took a regular toboggan slide; but as soon as the drouth came on in the East, and as soon as a knowledge of the shorter crop in the West became general, the market began to recover and find itself. It is apparent, however, that Eastern honey, both comb and extracted, will be lower than last year, while mountain sage, orange, and the lighter grades of alfalfa will possibly bring as good prices as last year. But Western producers should be careful not to unload too much of their honey in the East, as the markets there are well supplied with the local production. Local consumption should be encouraged as much as possible. The Eastern markets will not stand heavy Western shipments altho they will take orange and sage, all that can be furnished.

### Dr. H. A. Surface; a Faithful Public Servant

FOR the last fourteen years Dr. H. A. Surface has been the efficient and energetic Economic Zoologist of Pennsylvania, with headquarters at Harrisburg. He graduated from the Ohio State University, did a large amount of post-graduate work, and then taught botany, chemistry, and other natural sciences. He finally accepted a position with the State College of Pennsylvania; later resigned and accepted the position above mentioned.

Dr. Surface, a thoroughly trained man, has been one of the most untiring workers whom it has ever been our pleasure to meet. He is a zoologist—one of the best in the country—a fruit-grower as well as beekeeper.

Here is a sample of his practical efficiency. A few years ago he bought a piece of old worn-out land near Harrisburg which everybody said was good for nothing. He saw its great possibilities in fruit-growing, and began setting out fruit-trees. After two and a half years of his skillful management the trees were yielding a basketful of peaches each, and now he is getting fruit



off the farm—immense quantities of it. The land is now worth many times its cost.

Dr. Surface, on account of his active campaign against certain commercial insecticides that are worse than useless, and because of his insistence that only fit men serve in his department, has stirred up a lot of opposition. But during this time he has also been winning the friendship of thousands of fruit-growers in his state. However, politics has apparently been having its influence. Surface is not a pliant tool. His men must be efficient and not mere vote-getters. And now this man who has done so much for the farmers and fruit-growers in Pennsylvania has been dismissed without charges being preferred and without a hearing being given him. He earnestly pleaded for a hearing, but it was denied him.

The numerous Pennsylvania newspaper clippings that have been received at this office, dealing with the dismissal of Dr. Surface, indicate that the administration has apparently made a mistake that will react.

Another man, and a good one, will soon take Dr. Surface's place, in the person of Prof. Sanders, of Wisconsin; but apparently Sanders will have nothing to say concerning the selection of his field men; and if he runs up against the politicians, as Dr. Surface has had the courage to do, he will be severely hampered.

Similar removals of officials have been made in other states. When a nursery inspector or entomologist becomes familiar with the conditions in his own state, a new man, altho equally capable, will be very seriously handicapped before he can get the run of affairs.

We hear nothing but good of Prof. Sanders. Indeed, Dr. Surface speaks of him in the highest terms. We wish him every success.

In the meantime, Dr. Surface is considering several tentative offers, but he will probably take a much-needed rest before he takes up with any of them.

### The Field Meet in Tennessee

In this issue, in her regular department, Mrs. Grace Allen graphically describes some incidents connected with the meet held at her home. She did not tell the readers how royally she entertained her guests, nor about her charming personality. She is just what her writings would signify. She bubbles over with enthusiasm, and the bee-keepers who were fortunate enough to meet at her home will long remember the day.

Mrs. Allen did not tell of her little apiary in the back yard; of its neat appear-

ance, of the gentle strain of Italians—how, during the whole day, not one of the bees stung a single person except, later in the day, when Mr. J. A. Buchanan was illustrating one of his stunts in introducing. Crowds mingled freely among the hives; in fact, they ate their luncheon right in the midst of the flight of the bees going to and from the entrances.

The speakers consisted of Dr. E. F. Phillips, of the Bureau of Entomology; Frank C. Pellett, of Atlantic, Iowa, who is writing for the *American Bee Journal*; Mr. J. S. Ward, foul-brood inspector of Tennessee, and who acted as presiding officer; Mr. Ben G. Davis and his father, John M., both of them extensive queen-breeders; Hon. H. K. Bryson, Commissioner of Agriculture; Mrs. Grace Allen; and E. R. Root.

The following day Dr. Phillips, Mr. Pellett, Mr. Ward, Mr. Buchanan, Mr. Drane, and Mr. Root went to Hollow Rock apiary where they were the guests of Mr. N. E. Smith. The crowd was not very large; but we spent a delightful afternoon there after which we went to Memphis. The field meet at this point was held on the fair-ground, where the persons already mentioned gave short addresses.

Mr. W. E. Drane entertained the crowd with an automobile ride around Memphis, winding up with a couple of mammoth watermelons at his home. This part of the "program" was a special success.

There are wonderful possibilities in keeping bees in Tennessee. It has a mild climate and the honey flora is varied and abundant.

### Diagnosing Colonies Without Removing the Frames

Mr. M. M. CUNNINGHAM, in his article in this issue, page 804, incidentally tells how he determines the condition of his colonies by merely lifting up the back end of the hive from the bottom-board, and looking up under the frames. Some years ago, it will be remembered by our older readers, the editor told how he managed to go thru one of our outyards one season with very little manipulation of the frames. The condition of each colony was determined by the flight of bees at the entrance and by tilting up the brood-chambers or supers and looking up under. We not only kept down swarming but produced a fine crop of honey. The visits to the yard were made on the bicycle, and only about half an hour or an hour was consumed at a time. These external examinations enabled us to determine about all we desired to know.

The flying at the entrance of any colony indicated whether they needed more room. If "hefting" at the back end of the hive confirmed the entrance diagnosis, super room was added in the form of a half-depth extracting-super. If the colony showed that it was not doing much, the brood-nest was opened up and the frames examined. A failing or missing queen was noted, and the colony was put in condition to build up.

The number of flying bees going into an entrance of a beehive will determine pretty accurately whether a colony needs more room. If there are only a few bees the colony may be weak. If there are only one or two bees at the entrance the colony needs an internal examination. One comb will often show the cause and suggest the remedy. Of course, one must not be confused by the play-spells of bees.

If bee disease is found an examination of every comb is essential.

There were scarcely half a dozen colonies out of an apiary of some 80 odd whose brood-nests had been examined the entire season, and yet we believe no yard since has ever received any better care.

The ordinary beginner will not be able to make these external examinations; but as he grows in experience he will be able to determine a good deal by the flight of the bees at the entrances, and by hefting, as already described.

The late James Heddon placed a great deal of emphasis on the possibility of determining the condition of his shallow-brood-chamber colonies without handling frames. He urged that it was not necessary to handle frames to any great extent; that most of the work could be done by looking up between the combs; and to a great extent he was right.

We venture to say that some of the most extensive honey-producers today depend largely on these external examinations in order to save time. Mr. Cunningham is the only one to make any specific mention of it for some time.

### The Eating Quality of Comb Honey Built from Starters or Full Sheets

In this issue, one of our correspondents, Mr. Friedman Greiner, page 793, while preferring to use full sheets of foundation in sections from a money-making point of view, yet indorsing the sentiment of the late W. Z. Hutchinson, thinks he would prefer for his own eating combs naturally built without foundation.

Some years ago we conducted some quite

extensive experiments under the direction of Mr. E. B. Weed, of Weed foundation fame. We proved conclusively, or thought we did at the time, that comb honey built from a very narrow starter would actually have more wax to the cubic inch of honey than the same article built from a *full sheet* of thin-super foundation. This was not a mere guess, for it was tested out by Mr. Weed by actual weighing. As a general thing bees will build drone or store comb, when sections are being built on the hive, if they do not have full sheets of foundation in the sections.

Mr. Weed also discovered that even when bees built all worker comb, without foundation and with, the difference between the two was so slight that it could not be detected in eating. There are times, however, when one comb will be softer and more pliable than another; and if one should happen to get hold of a naturally built comb and bite into it he would conclude that it was certainly softer than combs that at other times were built from full sheets of foundation.

This would be an interesting experiment to try out on some field day. Sections should be prepared in advance, built without foundation and with full sheets. In the former case it would be permissible to use a very narrow starter in order to get the bees started right. If both these sets of sections when filled were exposed to the same temperature for a few hours before being eaten, we venture the prediction that the committee, after eating one and then the other, would not be able to tell one section from another.

The results of exhaustive experiments, some years ago, and which have been given in several editions of the A B C and X Y Z of Bee Culture, have convinced us that it is not only good business policy to use full sheets, but that the consumer is actually favored, because worker combs built from thin sheets of foundation have less midrib and less wax than the ordinary drone comb without foundation.

We suggest that, if Mr. Greiner will take a piece of naturally built *drone* comb and a piece of worker comb built from a full sheet of thin foundation, and fill both with plaster of Paris, he will find that, on hardening, the cross-sections will show more wax to the naked eye in the former than in the worker comb built from thin super foundation. We have in our office today plaster-cast samples of both. In some of the old editions of the A B C and X Y Z of Bee Culture appear actual photos in half-tones showing these casts.



Dr. C. C. Miller

# STRAY STRAWS

Marengo, Ill.



M. H. HUNT writes: "On page 427, GLEANINGS, June 1, you say it is unfortunate that raising the brood to stop swarming cannot be worked with comb honey. I have done it for 20 years with comb honey, using a ventilated bee-escape board on top of the sections. The ventilation allows the heat to pass up, and the brood hatches and passes down."

"It is no use," says a British authority, "trying to prevent drone-rearing by cutting out drone brood, as the bees will only build drone comb again." It is true, the bees will again build drone comb, but is there not still some use in it? For if drone comb be cut out at least once every three weeks, no drones will ever come to maturity, and we save all they would eat. Of course, the better thing is to plug the holes with worker comb or worker foundation.

WESLEY FOSTER, you say, p. 652, you don't like honey in your hot drink. I don't like it as well as sugar, either, at least most honey. But just to please me I wish you'd use honey anyhow. I'd like to have you live longer. Pick around and try to find some honey less objectionable to your taste. Some honey I can't endure in hot drink. For a time I bought Colorado alfalfa, as having mildest flavor; but the last I got was too strong, and white-clover honey is now my staple.

I WANTED eggs and larvæ in soft new comb, for queen-cells, from No. 67. July 17 I gave it an empty frame, not a starter of any kind in it. July 25 I found worker and drone comb built in it, some honey, and a good many worker-cells just started, but not a larva nor an egg in the frame. I left it so, at the same time giving an old black brood-comb, containing no brood of any kind. Aug. 2 I found the new comb as before, plenty of cells that looked as if they might be inviting to the queen, and not a larva or egg in the frame, while the black comb was well occupied with eggs and larvæ. Now, some of you people—nice, respectable people—people that I like, please reconcile the foregoing with the statement that your queens show a preference for new comb while my queens, other things being equal, always prefer old comb.

DECIDEDLY interesting is J. E. Hand's analysis of the swarming problem, p. 599. There seems no little to support his view, that diminished fertility causes the building

of cells, cells cause swarming, an open cell does not cause swarming because "an open cell is not an element of antagonism," and a closed cell causes swarming because "a capped queen-cell is an element of antagonism to a vigorous queen." But some troublesome questions arise. If a sealed cell is necessary to cause swarming, how is it that I've known many cases in which cells were persistently destroyed and the bees swarmed without waiting for cells to be sealed, in some cases swarming with only eggs in queen-cells? And if diminished fertility on the part of the queen is a necessary factor in swarming, how is it that I have known colonies to swarm with a vigorous queen not a month old, said queen being introduced while the swarming fever was on? The important thing, however, is the practice resulting from the theory, and in that Mr. Hand is solid: Requeen "before the zenith of fertility merges into broodiness." Yet it must be confessed there are objections to carrying out that practice in all cases.

PROF. BALDWIN, as I was reading what you say, p. 525, about introducing a queen by daubing her with honey, I said, "But don't you know that's more than 50 years old, and long ago laid aside?" Then as I read on about "half a teacupful of honey" it began to look as if you had something different from the old formula, which was merely to daub the queen with honey taken from her new home. Now suppose you tell us minutely just what you do, for success and failure often depend on apparent trifles. [The honey method of introducing was dropped years ago because it was noticed that, after the queen was laying, she looked as if she had been thru a period of smothering. Her body would look sleek, and she would look for all the world like some bees that had been nearly smothered to death. The general consensus of opinion at the time was that, while this plan was sometimes successful, it often and generally resulted in injury to the queen. The fact that such queen might die at a time when she could least be spared, during mid-winter or early spring, and that the colony would then be hopelessly queenless, made it unadvisable at the time to recommend the method. Prof. Baldwin, however, is usually careful, and he doubtless has eliminated the objectionable feature. If the queens introduced as he recommends look fresh and not as if they had been greased up, it is probably all right.—Ed.]



Grace Allen

## THE DIXIE BEE

Nashville, Tenn.



The very loveliest thing in all GLEANINGS is on page 619, July 15. No, I'm not going to tell, it's so worth your while to look.

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The magnificent swarm that pours out so splendidly in the bright noon of May or June is one thing; and the little ornery, pesky (yes, I am choosing my words with the daintiest deliberation), measly swarm, no bigger than your fist that slips out at five o'clock some August evening is quite another. The first one is worthy a chapter in Maeterlinck; the other—well, one chooses one's words—and wishes one needn't!

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Those June rains caused the clover to hold on a little longer than usual, and the bees had made a fair start in the supers again after extracting, when now along comes a flow (?) of honey-dew which is being stored generously in both brood-chambers and supers. It is interesting to notice how early the bees start out after it in the morning. It is all very well for wintering on, down here, but we don't want any left over in the supers.

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I am greatly interested in Mr. Arthur C. Miller's article, "The Cost of Honey Production," page 591, July 15. This is something that undoubtedly most beemen are not sufficiently accurate about. Mr. Miller's article seems to me very thoughtful and concise in its presentation of estimates that are practical and definite. As to the accuracy of the figures—who speaks first? We are keeping our own accounts very carefully; but, being mere backlotterers, they are no especial value in such a case. Some day we shall be able to pass more intelligent judgment on that annual per-colony expenditure of \$2.75. At the present writing, it impresses me favorably—that is, when no time is spent except for work actually necessary, which is, of course, what Mr. Miller refers to. He was not attempting to estimate either the time or the value of the time some of us backlotterers spend per colony per year!

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## THE NASHVILLE MEETING.

It is certainly a delightful experience to meet people whom we have long known by name and have admired greatly. On August 9 it was the great privilege of the beekeepers about Nashville to meet Mr. E. R. Root,

Dr. Phillips, and Mr. Frank Pellett—a privilege we appreciated greatly, for we did thoroly enjoy our distinguished guests. May they come again and often—Tennessee and Tennessee beekeepers will always welcome them. My personal pleasure in these new acquaintances was particularly keen, and, in the case of Mr. Root, it seemed a bit like meeting a member of the family I'd not chanced to be thrown with before. It is nice to come to know the editor, especially when he turns out to be just what the letters from his office (even those he doesn't write himself) would suggest—a pleasant, friendly, courteous gentleman.

We did have a good time that day. "if I do say it myself as shouldn't." At any rate, the hostess did, even tho the weather did force her to pack her forty or more guests rather closely on the narrow porch all the morning, and even tho the prosy market-wagon did stop in front of her gate and announce itself with a shrill whistle right in the middle of a speech ("Nothing today," she called. "Gitap!" the driver exclaimed, when he saw the crowd); even tho, when called on unexpectedly for a talk, her embarrassed wits went scattering till not even one poor little wit would come back to help her thru her stammering; even tho the lunch, lazily ordered out from town, didn't come, and didn't and didn't (fortunately, it finally did); and even tho the nearly serious climax of the comic came the next day, when one section of the porch rail, graced all Wednesday morning by several prominent beekeepers, swayed out into space when she sat on it, and with a sort of last-straw-on-the-camel's-back air gave way utterly, depositing her none too gently in an ignominious and almost unconscious heap among the vines at the foot of the porch, and then, promptly banging down on top of her, so that the firemen came rushing dramatically across from the other side of the street to lift off the debris and help her into the house in their best rescue manner. But "for a' that," she did enjoy her guests greatly, from the least amateur, whoever he may have been, to the most important gentleman who sat on the porch rail; and she hopes that if ever any one of them comes this way again he will call up the telephone by the front window and say, "I'm coming out." He may be sure of a hearty welcome, a sandwich, and a cup of tea, or a cracker and a bit of honey, and plenty of talk about bees. Won't you all come back?

# BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Mr. Editor, in your footnote, page 585, July 15, you say that if Dr. Miller is right, "does it not argue that it is an advantage to produce both comb and extracted honey in the same yard?" I am not sure as to producing comb honey in an extracting-yard, but I am sure that it pays to use extracting-combs in connection with the production of comb honey.

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## SIMILARITY OF THE TWO DISEASES.

Inspector M. J. Meeker, of San Bernardino County, informs me that American foul brood seems to be more of an aggressor than the European variety (black brood) this season, with the two converging apparently in some instances. The American caused the "big scare" among beekeepers a few years ago, but now in this section the other kind seems to be more dreaded. He advises the adding of sealed brood in abundance to check the latter, caging the queen when necessary. He always encourages Italian stock. Mr. Meeker is emphatic as to Italianizing to cure the disease.

In a recent conversation with Mr. George W. Dixon, of Beaumont, he mentioned the similarity of the American and European types, but his description of the converging lines caused me to believe that the American form is mistaken for the European before it has reached the ropy, coffee-colored state of the last stages. Mr. Dixon did not claim that European foul brood is often sealed, but that the larvæ of sealed cells at first do not appear as being infected with American; but later there could be no doubt about the matter. It is a well-known fact that, even with American, the brood when it first succumbs to the disease has not reached the stage where it is but a ropy mass in the bottom of the cell, but is nothing more nor less than a dead larva. Later it degenerates into a mass of ropy filth in the bottom of the cells. This may in a way explain something of the converging lines, which are in reality only mistaken symptoms. Of course there may be cases where the germs of the two diseases are vieing with each other for the victim.

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## POISONING SKUNKS.

Skunks having begun their annual onslaught upon my Treemont yard I decided

to give them their usual feast of strychnine, which, as a rule, puts such a check to their operations that the bees are relieved at once. As I have before mentioned, I use small chunks of fresh beef in which the poison is well hidden. This is necessary, as it is not eaten readily if left on the surface so it may be tasted. All undevoured pieces should be taken up the following morning if there are domestic animals that might get hold of it.

But I started to relate a little experience. On the evening of July 22 my twelve-year-old son Ralph and I made preparations for a journey to the ranch for the express purpose of putting out some poison. It was quite late when we arrived, but we prepared the poison, lighted a lamp, and started to distribute the dope. We soon discovered that the bees were on the war-path at any noise that chanced to pass the hive, having been made so by being irritated so much by skunks. We were obliged to abandon the light; but as it was not yet extremely dark we continued to distribute the poisoned meat. We had traveled not more than a third the distance of the length of the yard when to my horror I found I was standing face to face with a large skunk. Well, as a rule I am not much of a coward; but I shall have to admit that these skunks have got me "bluffed" from the start. There I stood gasping for breath in a manner that left no doubt about my emotions; but I made no move, neither did the intruder. I was afraid I might draw forth some of its abundance of perfume, but I finally got up courage enough to pick up a rock to throw at it. My moving seemed to give it a spell of fear, and it dodged under the honey-house. It is safe to say that I left it undisturbed. When we reached the upper end of the yard we ran on to the second one; but it did not tarry long, to my great delight. Before we got back to the bunkhouse we saw the third one. We retired for the night, and such a night as it was! I had some difficulty in getting to sleep, and it was near midnight when I finally lost myself; but it was not many minutes before I found myself again. About that time it seemed that all of the skunks in the country were giving me a smell of their perfumery, and sleep for the rest of the night was out of the question. Poison causes such distress in some cases that the odor is released, while in others it acts so quickly the result is the reverse.



# NOTES FROM CANADA

J. L. Byer, Markham, Ont.



ONTARIO HAS A FINE CROP OF HONEY.

I should not be surprised if the crop of clover honey would turn out to be one of the largest ever produced in the Province. As to the quality, a better honey has never been produced—color, body, and flavor being considered, and that is claiming quite a lot, as this province has produced some good honey in past years. Never has there been a better opportunity to popularize further the use of good extracted honey than the present time, for along with the keenest demand ever known for our product we have the finest of honey to supply the consumers. Why such a demand? Simply because of the high price of sugar and the greatest shortage in the fruit crop of all kinds, nearly, that we have had for many years. In my Notes for Aug. 1 I stated that much depended on whether the public looked upon honey as merely a luxury or as a food in determining the matter of prices; and judging by the way our telephone rings so frequently, callers asking to be supplied with from 60 to 200 pounds each, the fact seems evident that they consider honey a real necessity, and there need be no worry about the present good crop not being disposed of at fair prices. In our own case, at least, we are already to the point when we are considering refusing local orders in order to supply a number of customers in the West who annually expect to be supplied. "It is an ill wind that blows nobody good;" and while we are sorry the fruit-growers have such a poor crop, still we should rejoice that we happen to have a good crop of honey to help take the place of their product for this year.

While the crop has been good indeed, present indications for our own locality, at least, would make it appear that quite likely next year's crop is included in the present one, as the prolonged drouth is playing havoc with the clover. Buckwheat will be almost if not quite a total failure from the same cause, so considerable feeding will be in order later on. However, the brood-nests are the heaviest I have ever known at the close of a good flow; so, after all, the sugar-bill may not be excessive.

WHAT SHALL THE PRICE BE?

August 14, and as yet no report has come to beekeepers as to prices recommended for the season. This is no criticism of the

committee who have this work in charge, as the season was late, and doubtless it has been impossible to get the statistics necessary to form a reliable estimate of the crop at an earlier date. At the same time, a delayed report has its disadvantages in some ways, as many have chances to sell early in the season and have to use their own judgment as to what price to ask. In our own case, three-quarters of the crop was sold while still on the hives. What should we do in a case of this kind—wait for the report, or sell when the buyer was asking for the crop? Quite a problem to decide, surely; and when one has the chance of a good sale, taking tons at once, the temptation is strong to make a deal. However, the report coming later, helps to steady the market, and assists those who have not already sold their crop, this class no doubt being in the majority among the beekeepers.

STAY BY THE JOB.

If there is anything to be made in any business, the man who stays with the job is the one who will win out in the end. The truth of the foregoing was forcibly brought to my mind a few days ago when motoring home from the north yard, 90 miles away. Stopping for a few minutes to call on a friend I asked him what kind of crop a beekeeper had who lived just a short distance away. Imagine my surprise to learn that the beekeeper sold out all his bees last spring. Asking the reason why, I was told that, following the big crop of 1913, the two poor years of 1914 and '15 had discouraged him, and he had decided to sell. If he had held on to the bees this year in that same locality, he could have successfully weathered two more years of failure—a thing that is not likely to occur, for that matter.

Frequently I have remarked that if the virtue of patience is more necessary to any one class of people than to others, beekeepers are the needy ones, and the illustration just given once more proves this to be correct. Beekeeping is not a "get-rich quick" game, and the men who take up the calling expecting anything like that will surely be disappointed and disgusted in the end, while on the other hand the one who is adapted to the business, has lots of patience and "sticktoitiveness" to help tide over the poor seasons that are sure to come, stands at least as much chance at making a comfortable living, and perhaps a bit more, as those engaged in any other rural pursuit.



# BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado



## CARBOLIZED CLOTHS.

J. A. Green's article on freeing bees from supers is very interesting. My experience with using carbolized cloths is rather limited, but I look at it this way: During the honey-flow the bees may be smoked out as rapidly as they can be run out with the carbolized cloths. At the end of the season, when the weather is cool, the escapes will do the work far more satisfactorily. In fact, it is practically impossible to remove bees with carbolized cloths when the weather is cool. Bee-escapes have worked well with me, and it does not take more than twelve hours when not to exceed three supers are piled up on an escape. I am going to try carbolized cloths again, following pointers learned from Mr. Green's article.

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## THE CROP AND MARKET.

The honey crop is pretty well accounted for in the Rocky Mountain region now; and while the bees are still gathering (Aug. 12), little is being done in the supers except finishing. The total crop for the West will not be large—nothing like 1913, but probably near last season's crop. It is better in places than last season's crop and poorer in others. The drouth in July cut the crop in Colorado fully fifty per cent, and the cool spring in Idaho made things turn out unsatisfactorily there. One and a half cases of comb honey per colony is about the average yield in some districts, and much less than that in parts of Idaho. Probably a few small areas will show higher averages. The demand for comb honey has not been brisk, as the white-clover crop has supplied the early market. The local demand for extracted honey has been good; and with a little more work the home market will absorb a large part of our crop.

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## GRADING COMB HONEY.

It is easy to grade comb honey so that it will comply with almost any grading rules if a few simple rules are followed. 1. Pack all sections of like color, weight, and finish together. Recognize that general poor appearance will consign a section to the cull class, even tho there may be little said in the grading rules applicable to that special

case. In packing, the lower grades require more cases to receive the various colors and weights than the higher grades. Three cases will generally accommodate the No. 2 grade; two cases for the No. 1 and two cases for the fancy-grade. Learn to decide in a second or two just where each section of honey goes as you pick it up. It will soon become necessary to weigh but very few sections of honey unless you are stamping the exact weight on each section.

In polishing comb-honey sections a steel putty-knife, a piece of glass, or sharp-edged piece of steel will do the work necessary without the dust injuring the surface of the comb the way the polishing-machines do it. The manner of producing the honey is quite an item also.

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## SUPERING AND DESUPERING.

Early in the season the beekeeper is concerned with getting the bees into the supers; later he concerns himself with the problem of how to super; still later he is perplexed to know how to desuper his colonies. If spring work has been done properly, and the season is favorable, it is easy to get the bees into the supers if you have eight-frame hives. Here in Colorado it is far easier to secure a crop of comb honey from an eight-frame than from a ten-frame colony. Colonies may be forced to super work by lifting the body from the bottom-board an inch or by the use of bait combs.

In supering, it is rare that a season is so favorable that lifting supers and placing empties beneath is advisable. This season, all (or practically all) supers have been placed on top, and even at that there are some ten and eleven ounce sections. Full top starters and bottom starters are used too. Comb honey is removed when supers are four-fifths finished, and the unfinished sections are returned.

At the wane of the flow the bees are crowded down to what they can finish. When the hives are "skinned" of supers two combs are removed from each, and empty drawn combs are inserted in the brood-nest to induce more brooding for winter bees of youth and vigor. We have more trouble here with too much honey in the hive than too little; but we save combs for use in feeding too. One way that is a good one is to have shallow extracting-combs to put on when the season wanes. These may be left on the hives all winter.

# CONVERSATIONS WITH DOOLITTLE

At Borodino, New York



TWO SIDES.

A correspondent writes: "Would not the beekeepers be better off without so many useless middlemen who style themselves 'dealers'? Are they not living without effort off of the real producers of honey? They add nothing to the real wealth of society. They merely transfer things from the place of production to the place of demand."

There is an old story about two men who stood on the opposite sides of a signboard which read on one side so many miles to A, and on the other side so many miles to B. The first man read from his side, and the other disputed him in no good-natured terms, reading from his side to prove the first wrong. This resulted in their leaving the sign and pounding each other till both were exhausted. On getting breath they returned to the sign, but happened to exchange places at the sign. This resulted in a good-natured shaking of hands, with the exclamation, "What fools we have been!"

Is our questioner sure that to "transfer things from the place of production to the place of demand" plays no important part for the beekeeper? What is production, any way? and who are the producers of wealth? Take honey for an illustration. When does production begin, and where does it end? Are the bees the producers, or is the man who manipulates the bees the chief and only factor in the production of honey? When is production completed, or when does the act of production cease and that of consumption begin? Evidently, production ceases when the honey is in the hands of the consumer, and not before. If this be true, and it seems to be so, then every man who aids in bringing honey in a suitable form to the consumer should be considered a producer.

Not only this, but the man who helps create a desire for our honey is a factor in its production—very little less so than the man who owns and manipulates the bees. Wealth is whatever satisfies human desires; and if no one desired honey, then it would have no value; and the placing it on the market would not be real production, or, to say the least, would be useless production. Production, then, in the broadest sense of the word, means gathering into a suitable form for use, and placing before those who have a desire for that special article the product in such a form as will

satisfy the desire. But this, if I see correctly, is not all, for there must first be created a desire for any article before there can be any benefit derived from placing it before the one who is expected to consume it. The one who creates a desire adds as much real value to an article as the bees or the man who manipulates them, where that article is honey. Whoever checks this natural movement of trade, or forms a combination with his fellowmen to restrain or control it, is a traitor to society. All legitimate trade is production. A combination or trust to produce a monopoly is robbery.

The question then is, Does the dealer or middleman check the natural movement of trade in honey? Does he form a trust or monopoly to hold up the legitimate desire for our product? Is he not rather of value because he brings our goods to the point of consumption at a less cost than could be done by the beekeeper or the consumer? Have not the dealers in the past been prime movers in creating a desire for the honey the beekeepers have produced? If so, the dealer cannot be considered a useless idler by any means. The real idler is the man who has no trade at all—the man who thinks society owes him a living and is all out of joint because he does not get it. On the other hand, the man or woman who has created any new desire in any part of the world for our products from the bees is as much a producer as the man who brought the alfalfa and alsike clover into the parts of the United States where they were not known 50 and 75 years ago, to the nearly doubling of our honey crop in very much of the territory of our country.

Another thing that none of our beekeepers seem to have thought of. Suppose we could do away with all of these "useless middlemen," so that they could not get any commission on the handling of our honey. What then? What occupation must they take up in order to become producers? Must they all go to keeping bees? If they did, what would be the consequences to the beekeepers of the United States? If every drummer would quit the road, every dealer cease to buy and sell, every so-called "worthless middleman" stop his trade and barter, and all in one mass begin investigating the wonders of the hive, and become "producers," according to the ideas of most of those who proclaim on this subject, where would be found a market for the products of their labor and ours?



# GENERAL CORRESPONDENCE

## CURES AND IMMUNITY OF THE ISLE OF WIGHT DISEASE

BY GEO. W. BULLAMORE

"Labor in vain and lost cash" is the usual result of attempts to cure bee diseases by means of drugs; nor do I think we are justified in hoping for any other result. The physician has attained some success in the treatment of human ailments; but the drugs administered are usually for the alleviation of the more distressing symptoms. Careful nursing and dieting then bring about the cure. In a few diseases, drugs, such as certain compounds of arsenic, have a direct effect on the cause; but for successfully stamping out an epidemic it is necessary to resort to methods for the prevention of contagion.

The sudden death in winter of a large number of stocks which were packed down in the autumn in apparently good condition after producing surplus is a symptom of the Isle of Wight disease which does not offer opportunities for treatment. At certain times, however, bees are to be seen crawling with the bowel heavily laden with pollen residues. Attempts are often made to treat this manifestation of disease by means of aperient medicines administered in sugar syrup. Sometimes success is claimed; but we know very little about the action of drugs on insects, and it is not unlikely that the result would have been the same had the drug been omitted from the syrup. A natural honey-flow may also bring about the cessation of crawling. When syrup or dilute honey is being administered to the bees, excess of liquid is often passed off thru the intestines. When nectar is being gathered, some of the water finds its way to the bowel. The resultant flushing relieves the system of toxins (poisons produced by disease germs) which cause the symptom, but the disease itself remains.

All the reported cures of Isle of Wight disease appear to be records of the disappearance of this crawling symptom, and to have been brought about either by feeding with syrup or dilute honey, or by means of a sudden stoppage of brood-rearing. The giving of sulphate of iron in the food, sprinkling the combs with sulphur and other fungicides, and painting the inside of the hive with creosote, are operations known to destroy brood, and have been suggested as cures. When brood-rearing ceases suddenly, the vital drain of gland secretion from the workers is arrested; and, in addition, the excess moisture from the

food will now pass to the bowel. Crawling due to weakness and parasitic intoxication will then cease in a few days. For some such reason an apparently immune stock in an attacked apiary often proves to be queenless.

Attempts have been made to find a strain of bees that would resist Isle of Wight disease in much the same manner as the Italian race resists European foul brood. It is no test of resistance in this latter case if we merely change the queen of a foul-broody stock without allowing a period of queenlessness. Neither do we give the new race a fair trial when we requeen a stock showing the crawling symptom of Isle of Wight disease. In both cases the bees are swamped with disease from the commencement of the experiment. When Italian bees have had a fair chance I think that there is some evidence that they are the last to be affected, and that they more often recover temporarily. This suggests some slight degree of resistance rather than actual immunity; and to make the distinction clear a few lines on the nature of epidemic disease may be of use.

The breaking-up of organic matter into simpler compounds in nature is brought about by the agency of fungi, among which we include minute organisms known as bacteria. Many of the bacteria have resting forms, known as spores, which tide them over periods of adversity. Others depend for their continued existence on a continuity of food supply.

While life is present, the organic matter can resist the attacks of the majority of these bacteria (it possesses immunity), but certain forms have power to overcome the resistance of the living host, and a condition of parasitism results. Should the bacterial growth prove harmless, or should it handicap the host but slightly, the relationship is one of tolerance. But the growth often results in the production of poisons known as toxins, and these produce disease and death in a susceptible host. In much the same manner minute animal parasites may produce disease.

Diseases were originally much more local than they are at the present day. The result was, therefore, that the constant attack on a limited number of hosts meant the extinction of the hosts, and, in consequence, of the disease for lack of material. Other-



wise it resulted in the weeding-out of susceptible strains and the survival of those possessing tolerance or immunity. Owing to variation in this tolerance and immunity, disease might show from time to time, and in such a district the disease would be said to be *endemic*. Owing to migrations or to commerce some of these tolerant individuals reach other localities where the disease is unknown. In such a favorable field the germ is able to attack large numbers of individuals with low powers of resistance, and the result is an *epidemic*.

Now we can understand what has been happening in the bee world. Commerce and the increase of beekeeping, so that districts are now linked up by living bridges over which the disease can cross, give advantages to disease that it never before possessed. We do not know when Isle of Wight disease first issued from its endemic center, and it is quite likely that it has found a home permanently in more than one district. It is not much in evidence in dry hot summers, but will cause heavy losses during the winter. In a dry warm country where there is no wintering problem such a disease might attract no attention. In the struggle for existence, however, the more resistant bees would be favored. Unfortunately when such bees are brought to northern latitudes the winters are likely to prove fatal when the parasite is present.

The survival of certain apiaries on the Isle of Wight for several years after the other bees were dead does not appear to have been due to immunity, but, rather, to the fact that the disease did not reach them. Such apiaries disappeared quickly enough when attacked. On the same lines it is possible that the success of the Dutch bees was due to their freedom from harmful parasites when imported. They gave good results, but, like other kinds, were liable to contract disease after a time. When a district has been cleared, bees from Holland are very useful for restocking purposes; and as it is possible to obtain colonies of them the grafting of healthy queens on to moribund or doubtful stocks of native bees is avoided. Fecundity is one of their assets.

So far as I can interpret the facts, attempts at drug cures and the requeening of dying stocks can be dismissed as of no avail. The destruction of stocks showing crawling symptoms, too, has little or no effect on the spread, because the disease travels by means of the flying bees before such symptoms are manifested. To be of use the destruction of the stock in question should be accompanied by the destruction of all stocks within a radius of several miles. As this is scarcely practicable, it is advisable to avoid attempts at keeping up a dwindling apiary, but to wait till the district has been cleared of bees, and then make a fresh start with a healthy strain of bees. My preference in this direction would be for a strain of yellows with a record for longevity similar to that given by Doolittle on page 10 of GLEANINGS for this year. We can feel pretty sure that longevity and health are associated, and I always feel suspicious that the short-lived bee may be suffering from some chronic trouble which robs it of a few days of the best period of its life from the honey-producers' standpoint.

As to using the combs again, we know that infection may precede the first symptoms of disease by at least six months. We know that then the disease may disappear to terminate fatally six or nine months afterward. If we do not notice the first batch of crawling bees we may think that these bees have remained healthy for over twelve months. When bees are put on to old combs, and death takes place a year or two afterward, it may be due to reinfection; but there is an element of uncertainty about it. It is far safer to store the combs for a time at least, and reject some of the heavier, dirty, breeding-combs which afford the maximum protection to disease germs. The precaution may be unnecessary; but some of the evidence suggests ground infection, and it is, therefore, supposable that a germ may sometimes reach the combs.

A minute animal parasite, *Nosema apis*, is thought to be the cause; but diseases of this type are the most baffling with which the pathologist has to deal, and afford ample opportunity for controversy.

Albury, Herts, England.

## THE HONEY-MONEY MAKERS

BY ROSE WILLIAMS.

To my way of thinking there is nothing more attractive and at the same time so remunerative as bee culture; and for the life of me I cannot understand why more people don't take it up professionally. Every

little country place should have a few colonies of bees, and big places would profit by having a full-fledged apiary.

My place is situated about three miles from a thriving city; and while I hold a



Miss Williams' apiary, Nashville, Tenn., consisting of ten colonies increased from one in three years.

position in town I enjoy my bees as a side line. I think I must have been born under the honey star, for I've always had great admiration for bees. As a child I enjoyed them on our neighbors' adjoining farm, and I grew up with the intention of having bees of my own. The fact is, when I was quite young I planted the orchard which the hives now beautify for a future beeyard; and when I finally reached that long-looked-for period I started my apiary. Under the

most imposing peach-tree I placed the first hive of bees, which I bought from a friend, and then waited for results.

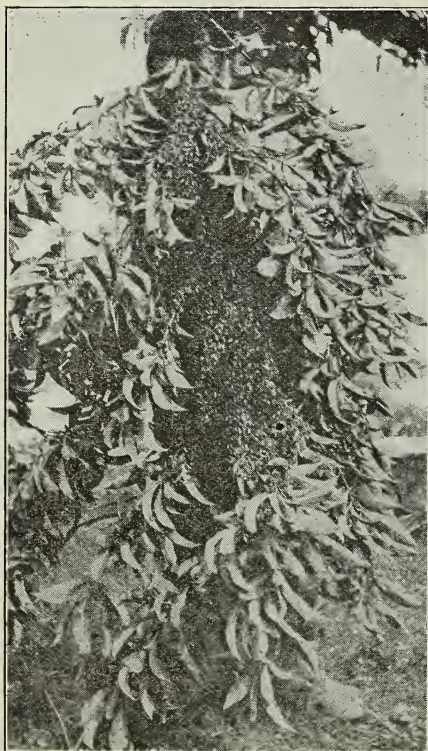
I remember how excited I was when I had to deal with my first swarm; and for the inexperienced apiarist there is nothing to compare with that sensational thrill that simply envelopes one with the startling realization of the novel duty devolving upon him in living his first swarm. I think I can safely say that to a *real* beekeeper (I

use the word *real*, meaning thereby one who actually loves the study and work of bee culture) there is nothing more inspiring than swarming bees. Coming at a season when one is usually busiest about his place it often happens that a swarm will issue from the hive at a most inopportune time, thus testing his patience; still, when he sees the hurrying and scurrying of his pets as in a mob they scramble out of the hive, and hears the joyous note of their madly whirring



The hiving-board is to a hive what a porch is to a house.





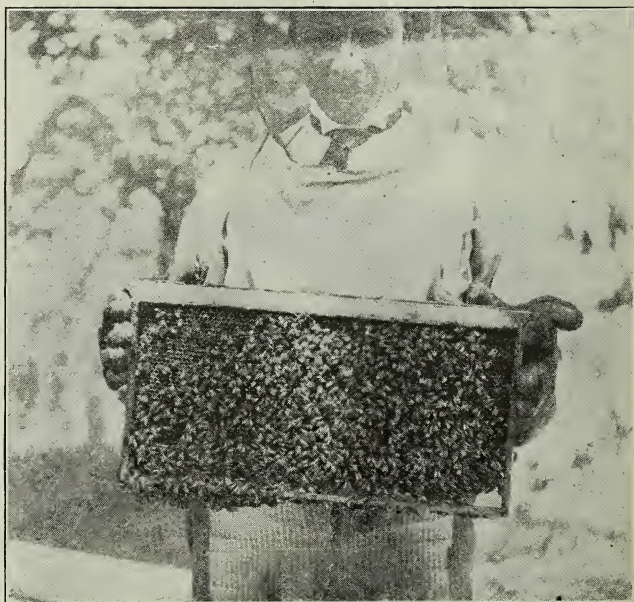
The first swarm after the limb was cut from the tree.

wings as they fly swiftly about before settling in a cluster on some convenient bush or low-hanging limb, he cannot help being convinced that the occasion is a festive one for the bees, in which he is glad to join and do his part.

It seems fundamentally to be the case that swarming is caused by an overcrowded condition of the hive. In May and June, after the honey-flow is well established and the hive is full of bees, the honey-combs laden with honey and the new brood soon to hatch, the bees decide that it would be advantageous for part of the colony to leave their present home and seek new quarters; so queen-cells are built, and pro-

vision thus made to supply a new queen, for the old queen always leaves with the swarm. It is not known what determines some of the bees, usually about two-thirds of the colony, to leave while the others remain to care for and hatch the brood. But so well organized are their methods that in this as well as in all other economical questions, their procedure is based upon wonderful foresight.

In the first place the bees realize that their existence depends upon their having a queen, for the queen lays all the eggs (in the working season she lays as many as three thousand eggs a day) from which the bees are hatched. There are three kinds of bees to a hive—the great majority, known as “worker” bees, being the honey-gatherers; the queen which is ruler of the busy tribe, and a limited proportion of drones. The drones are of masculine gender, the “workers” being females. Eggs for workers and drones are unlike; but one of the queer things is that the same egg that produces a worker-bee will, if fed and nurtured in a certain way, produce a queen. Therefore the workers may decide for themselves when they wish to hatch one or more queens. With admiration I gazed upon a queen-cell, shaped somewhat like a peanut hull, and hanging down from the side of the comb. This is made by the workers to accommodate the queen’s wonderfully slender, tapering body. I also noticed drone-



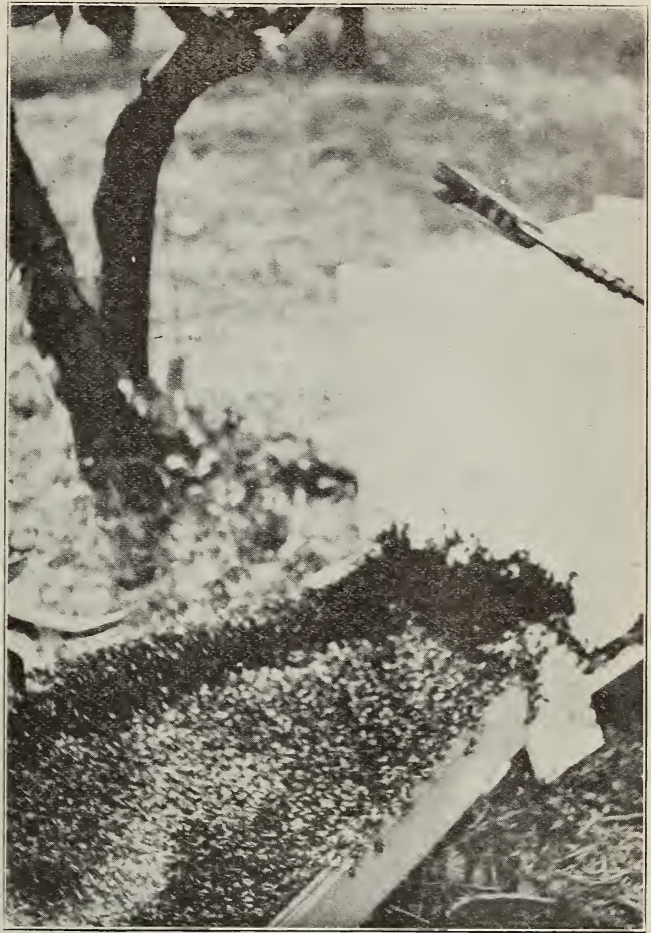
Removable combs make it possible to examine the colony at any time.



cells, which are similar in shape but larger than the worker-cells.

I had examined the colony only the day before, and had seen that the queen-cells were almost ready to hatch; still I felt a thrill anyway when some one near the beeyard yelled, "Come quick! your bees are swarming!" Hurriedly adjusting my veil and gloves (for I had not then sufficient self-confidence to risk handling them without some sort of protection) I ran to the scene of action. The air seemed filled with bees darting in every direction, making the morning beautiful to me by the sunlight glints flashing from their rapidly whirring wings. They were all about me, whirling and humming, apparently with no thought of settling into the cluster I so anxiously waited for them to form. Being a novice I might have been terrified, in spite of my armor, to be in the center of such a madly rushing mass of bees had I not known that; far from being hostile, they were in the happiest frame of mind possible. I knew their honey-sacs were laden with honey in preparation for their unknown journey in quest of a new abiding-place, for they always leave their old home with true holiday spirit.

After ten or fifteen minutes of patient watching I was glad to note that they had begun to form a cluster on a peach-tree limb near by. I waited till the cluster was completed and the bees quiet. Then with black Bill's assistance I carefully cut the limb, and with cautious step carried the entire cluster to the new hive which I had previously set in a shady place. The new hive was fitted with frames of wax foundation, which, I find, saves the bees some work besides insuring straight comb, as the cells are built with mathematical precision on each side of the foundation. After reach-



60,000 bees on the march into their new home.

ing the hive safely I quickly drew up a hiving-board to the entrance, and, with a quick jerk, shook the bees upon it in front of their new home. With a soft brush I lost no time in starting the main body of the confused mass of bees toward the hive. They readily entered, for the stately queen graciously led the way. Had the queen for any reason not gone into the hive, no amount of persuasion could have caused the other bees to remain inside; instead, upon discovering her absence they would have soon returned to the parent hive, probably to swarm again within the next few days under the leadership of one of the newly hatched queens.

After the first or "primary" swarm in the spring there may be one or more swarms, known as "secondary" swarms, within a week or ten days as the young

queens hatch. These swarms are never as large nor as enthusiastic as the first one to issue, and their number depends on the subsequent strength of the colony.

The hive that I use is an ordinary modern eight-frame hive. The removable frames make it possible to examine the condition of the colony at any time. A top compartment, or "super," containing twenty-four sections in each of which is a small piece of wax foundation for a "starter," is placed upon the hive when the bees are ready to store surplus honey. These sections, each holding about a pound of honey, are easily

removed, and are ready for immediate use or sale.

I began with one hive, but within three years had increased the number to ten, which is quite enough to handle unless one makes a regular business of it.

So to the man who has room enough under a fruit-tree for a hive of bees, I say from personal experience, put one there—you will be repaid many times for your trouble, for in this day of unfaithful servants you will find a very remunerative helper and willing, conscientious workers in our friends the bees.

Nashville, Tenn.

## A BANKER WHO COUNTS HIS HONEY

BY J. J. MOYERS

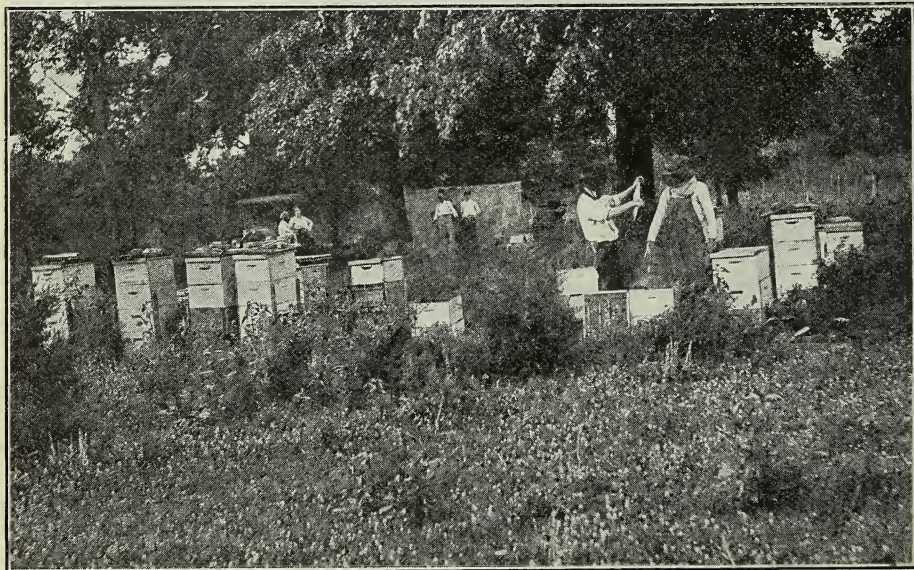
The photograph shows one of my eight apiaries, this one numbering fourteen colonies. On May 31 I extracted from these fourteen colonies 130 gallons of honey, leaving untouched the entire lower bodies and all the frames that contained brood in the upper supers. This honey I retailed for \$1.25 per gallon. From the cappings of this yard I extracted 9 lbs. of beeswax at 27 cents per pound, making a total income of \$164.96. My expenses were three men at \$2.00 per day, taking half a day, \$3.00; containers, \$8.40, this giving me a net profit of \$153.56.

These figures are only from the first

extracting, and I feel sure I shall be able to extract twice more before the flow is over, as the white clover (which is our principal crop) is just now at its best. I am confident that by the 25th of this month (June) my bees will be just as rich.

There is no question but that this is a great surplus for the wonderful little bees; but after noticing the white clover in the foreground of this picture, and knowing that there are hundreds of acres surrounding, it makes my statement more plausible. We are also in the center of the crimson-clover belt.

I have never seen the honey-flow better.



One of eight apiaries owned by a banker, J. J. Moyers, Fayetteville, Tenn.



It seems as if they might have a running fountain.

In 1914 and 1915 the crop was almost a complete failure in this section, causing a loss of about half of all colonies in this section, due to starvation.

After banking hours are over my spare hours are spent with the bees. For profit

and pleasure I find there is nothing better. My two observation hives, as shown in GLEANINGS, June 15, 1914, I keep at my home. They are my greatest pets. Even my baby loves them. Every beekeeper should have one or more observation hives. Ten times the worth of mine would not buy them.

Fayetteville, Tenn.

## WHAT I DO ON MY ROUNDS OF THE OUTYARDS

BY MILTON C. BERRY

Twenty-five years ago I joined the beekeepers' fraternity by annexing to my small lot of boyhood possessions two old gums of black bees bought from a neighbor who kept a few bees in the old-style way. After having carefully closed up the hives with old sacks, very securely fastening all the little fellows inside, I moved them to my home near by. Gradually I acquired necessary tools such as a smoker, and later, after purchasing some dovetailed hives, I added a hive-tool, my father's old screw-driver. After this the two hives were carefully guarded. Swarms came, and the two old gums—the nucleus of a future large business—began their increase.

During the day, when not busy with the bees, I was thinking of them, and, when asleep, I remembered them in my dreams. I looked forward to the future when my two old gums of blacks should become a thousand or more beautiful Italians in up-to-date, modern hives. Well do I remember my mother saying fondly, "My boy, you certainly must have a bee in your bonnet." The mother is gone now, but my boyhood dreams have come true for I now have over a thousand colonies of virtually pure three-banded Italians.

These thousand colonies, forming nine separate yards, are located within a radius of twenty miles around my home town, Hayneville, Alabama. Eight of them I term "out" yards, and what I wish to tell my brother beekeepers is how I manage these yards so as to enable me to make from one to two solid cars of honey annually, and at the same time to ship thousands of pounds of bees.

In each of these yards I have from fifty to two hundred colonies of bees, depending upon how many each location or territory will support. I learn the right number by observation and also by test, placing a few colonies in a given location, and gradually increasing until I find just how many such territory will support. It is quite possible to have a territory which will support a

double number just during the main sweet-clover honey-flow, but one has always to figure on the spring and fall when there is a slow flow from other sources, and not a great quantity at that. If the locations were given all of the colonies which they would at times support, then during the spring and summer one would be compelled to feed large quantities of sugar syrup. Therefore I deem it expedient to locate at these different yards only as many colonies as can be supported the year around with a small cost of feeding. At all of these yards which I am running for honey production there are good houses equipped with extractors, smokers, hive-tools, etc. In fact, on arrival at one of these yards all that I have to do is to unlock the house, light the smoker, and get busy.

### THE SPRING MANAGEMENT.

Either the last of February or the first of March I begin my first round, as we call it, going to each yard, examining all hives, and thus determining as to stores. If any seem to be light, and thus short of honey I take from those which have an abundance and some to spare, and give to their less fortunate relatives. In fact, the main object of this first round is to equalize stores, or feed the colonies short of stores. The next round is made about two weeks later. This time, if the weather is warm, and it usually is by March 15, I remove covers, scrape tops of frames, and, with a file bent to form a hook, I remove all burr-combs between the frames. This tool is made very easily from any old worn-out file by bending the handle so as to form a hook, which can be run down between the frames very nicely, and then drawn from front to back. The hook not only removes the burr combs, but also holds the wax so that it can be removed and placed in a box, and thus saved. By saving these small particles of wax at the end of the second round I often have from seventy-five to one hundred pounds of wax when these scrapings are rendered,

While on this round I not only clean up all hives as well as covers if they need scraping, but I note the condition of all colonies as to brood and also the condition of all queens. If any seem to be failing I mark the hives to be requeened on the next round. Entrance tins are now removed. These are what we call mouse-guards and are two inches high and six inches long, having three small sawtooth holes in them just large enough to allow two bees to squeeze in together. In the fall these are slipped in behind the regular entrance cleats, made of common plastering laths, with entrance cut about one-half inch high by four inches long. These tins keep mice from going into hives during cold winter nights and gnawing the combs containing pollen. Thus I am able to save many beautiful combs from being virtually ruined by the inroads of the well-known field mouse.

My next round comes about the first of April. This time I requeen all colonies having poor queens, and give queens to any that may have had no queen the round before. I again equalize stores.

About the middle of April I make my fourth spring round; remove cleats on all strong colonies; draw brood from the colonies that appear to be about ready to swarm, and give to weak colonies, or else elevate brood to the upper story above the queen-excluders in exchange for empty combs.

About one week later I make another trip around, and if I find any bees still inclined to swarm I elevate the brood again, and if this does not have the desired effect, and I find some queen-cells started, I elevate the hives a little at the front, and sometimes crack the covers about one-half inch to the

side. By this practice, and always seeing that all hives have plenty of room for both brood-rearing and honey-production, I seldom lose any swarms.

#### MANAGEMENT DURING THE HONEY-FLOW.

The main honey-flow from sweet clover is now close at hand, and my colonies are running over with bees ready for the harvest. If the clover sees fit to yield a bounteous flow in return for my labor, you may well know how I feel. I work, I almost slave, to keep ahead of the bees, elevating the full supers and placing those that have either empty combs or those partly full always just above the queen-excluder and next to the brood-chamber. At the same time I am busy extracting combs that are full and capped over. Thus I get my large crops. On the other hand, if the clover does not yield the nectar—again you may know how I feel—another long year to wait for another opportunity. So if I am blessed with a good crop of honey, I gather it; if not, I take my medicine with a smile, altho, perhaps, it may be a sickly one.

Incidentally I wish to mention that while making my rounds all colonies that show unusually good qualities for honey production and gentleness of disposition I mark and later move to my queen-yard. To all colonies having old queens I give new young mothers, and all which have not yielded returns as I believe they should I also requeen, thus preparing for the coming year.

About the last of October I make my last round, putting on entrance cleats and mouse-tins, carefully scraping covers, and seeing that they fit closely to keep out the cold winter winds.

Hayneville, Ala.

## HONEY AND HONEY PRODUCTION

BY HOMER MATHEWSON

Half of my life I spent in New York, producing clover, basswood, and buckwheat honey. Since then I have visited many of the great honey-producing sections in Florida, Texas, Colorado, California, Nevada, and Utah.

There is a great contrast between New York and the tupelo region of Florida, the mesquite and horsemint of Texas, the alfalfa of Colorado, and the orange and sage of California. The alfalfa of Nevada is water-white, while that of Imperial Valley is light amber. Why the difference? Simply the heat, and perhaps a little owing to the water.

The outlook in Utah seems better than in

Colorado, where in many localities, at least, it would seem that the honey crops are diminishing, owing to the land being used for diversified crops.

The marketing methods in most places are very poor, not over a tenth of the crop being sold at home. The home market should be increased.

Speaking of disease, the successful men of today have learned how to cope with disease, and they have very little fear. There may be a few cases of bee paralysis, but far more of beekeepers' paralysis. Much is written of the eight and nine hour day. Sometimes it needs 16 hours for success.

The picture [cover illustration.—Ed.]

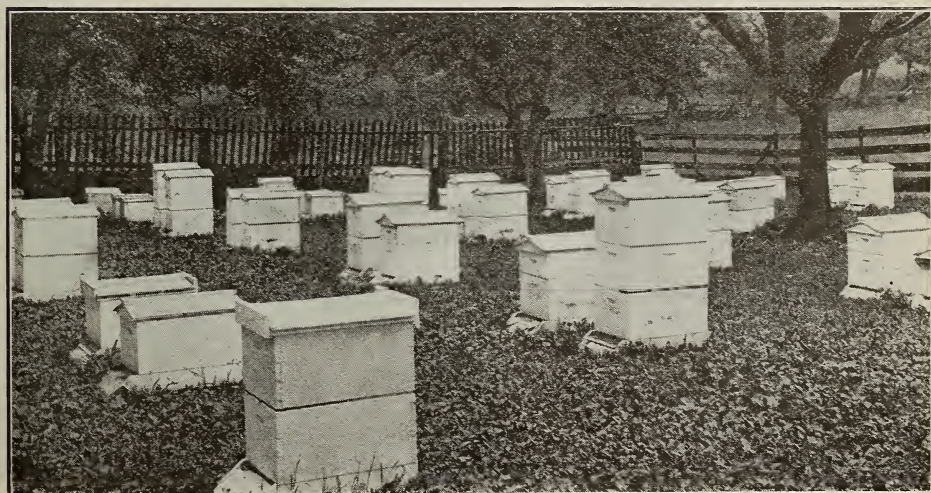




A city apiary that developed from a couple of swarms. The straw around the hives was for protection in the spring. Photographed by HOMER MATHEWSON.

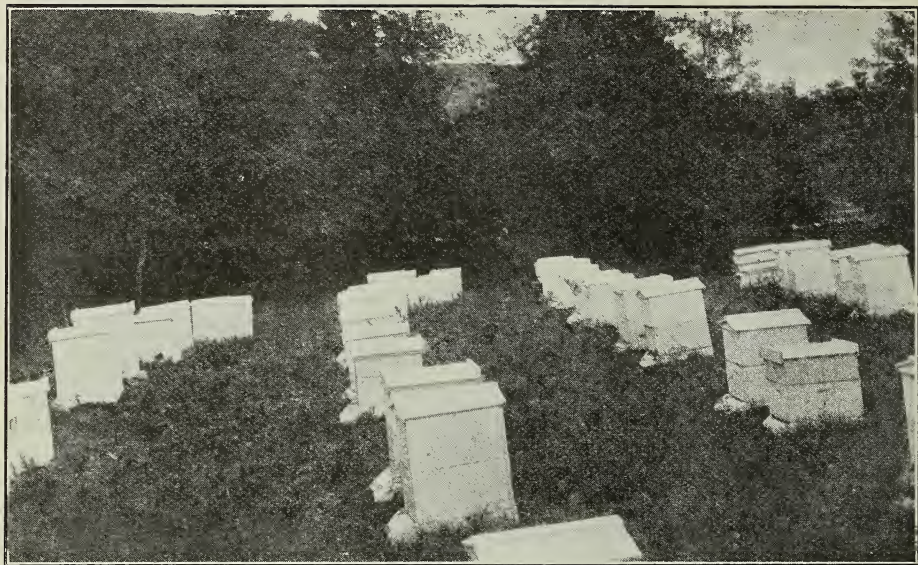
shows one of the many apiaries in the San Fernando Valley, Southern California. This yard is located near Chatsworth, and is one of nine outyards owned by the California Honey Co. This apiary produces only sage honey, very little orange being within reach. A fire-brake has been plowed around the yard, but even with this protection I am informed that there was some damage done by fire the year following my visit.

These apiaries are placed where there is sage enough to make a profitable yield, the one necessary asset being water, which must be near. At a water-hole on a hot July day there may be a bushel of bees getting water at one time. An amateur might think it was a large swarm. There may be a fair crop from sage every year, yet the sage will yield only three or four large crops in ten years.



Same city yard in July. Photographed by HOMER MATHEWSON.





The city apiary moved into the country for the buckwheat flow. Photographed by HOMER MATHEWSON.

#### EMIGRATES TO SUCCESS.

The last picture shows one of the large apiaries of Mr. Geo. B. Larinan, of Pasadena, Cal., a native of the Middle West. Mr. Larinan went to California a few years ago, settling in the San Joaquin Valley, where he commenced the keeping of bees commercially. After spending a year or more here, Mr. Larinan went to Pasadena. Mov-

ing his bees and buying more, he was able to establish two large apiaries of about 400 colonies each. These are located at Duarte, Los Angeles Co., among the orange-orchards, the bees having access to thousands of acres.

The fact that all the orange-orchards are irrigated makes possible a crop every year, altho it sometimes varies in quantity.



George B. Larinan's apiary near Pasadena, Cal., hauled by auto truck to the sage regions near Newhall, Cal., where the picture was taken. Photographed by HOMER MATHEWSON.



After the flow from the orange is over, the bees are carried by motor to the vicinity of Newhall, where they are loaded in the early evening, and in the morning they are flying among the sage 30 miles away. By moving this apiary Mr. Larinan is able to

secure a crop of honey much greater than he would if he had left the bees in the orange location. The motor truck is a great boon to the nerry beekeeper who wants the honey.  
Lexington, Ky.

## ARE BEES GUIDED BY SCENT OR BY SIGHT?

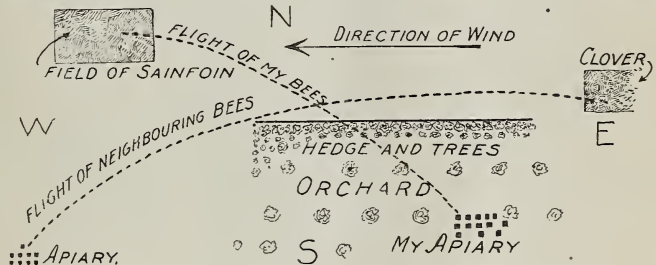
BY B. BLACKBOURNE

The editor has stated that the flight of bees is dependent on the distance they can see pasturage. I should like to suggest that scent plays an important part in helping the bees to find extensive areas of honey-producing plants. I have frequently noticed that on a windy day the perfume from certain flowers is carried for a considerable distance, and I am inclined to think that bees will follow up the "trail," so to speak, against the wind.

A year or two ago I came across a case which pointed to the above conclusion. My apiary is situated in an orchard bounded on its north side by a high hedge and a thick row of plum-trees. Beyond this the fields stretch away up hill, and three-quarters of a mile to the north-west are many acres of sainfoin upon which my bees were working. On this particular day an east wind was blowing; and as I was returning from the fields I noticed a steady stream of bees proceeding against the wind along the north side of the hedge. Being curious as to where they were going, I followed them up and found that they were working on about an acre of white clover situated at the end of the hedge about a quarter of a mile from my apiary. Now, this white clover was mixed with some other clovers and rye grass, and the actual flower-heads were mostly short and not at all thick. That is to say, they did not present a mass of white that could be seen from a distance. The bees were blacks, and must

have come from an apiary situated a mile to the west of my own. I could see that none of my bees were working on the clover, for mine were Italians and hybrids.

Now, why were not these blacks working on the sainfoin, which was much nearer to them—less than half the distance of the clover? I concluded that the scent from the clover had been carried down by the wind, while that from the sainfoin had been carried to the north of their hives. Why, then, were not my bees attracted? Either because, in order to get out of the orchard to reach the fields, they were obliged to rise high in the air to clear the hedge and trees, or else because they had previously been



working on the sainfoin for some days, tho if this latter is the reason why did not the blacks also work on it?

The whole question is an exceedingly interesting one, and also important for those engaged in commercial beekeeping; as one of the principal aids to success is in the study of one's locality.

Ramsgate, England.

[See the article by J. E. Crane, page 722, last issue.—Ed.]

## DRIFTING SWARMS FROM BOX HIVES

BY F. GREINER

The practice of making forced swarms by driving or drumming them out of their habitation into a box or hive placed on top is a very old one. When the straw skep was in fashion this manner of increase was

practiced to a great extent in European countries and is now. The follower of modern methods, however, scorns the idea of making forced swarms by this simple and effective method, and still it may be

practiced to advantage even by him. In some cases it seems to be the best way. I would not want to recommend the method to the up-to-date beekeeper who uses hives of the Langstroth pattern, has every comb a perfect one, easily movable, etc. He probably will make brushed or shaken swarms if such a procedure should become necessary. But when using such hives as the Heddon or Hand sectional hives, particularly when they have been occupied for a number of years by the bees, the method of driving and drumming out the swarm will prove to be as simple and successful as any other. I frequently resort to it in the management of my sectional hives.

It is not a bad practice to place the empty hive on top of the hive which is to be treated two or three days in advance, or perhaps even a week, if it is in the out-yards. In the latter instance it is better to place an excluder between the occupied hive and the empty one. I have the hive which is to receive the swarm filled with comb foundation preferably, or comb. Then before I make the drive this excluder is removed. Drumming and pounding on the hive for 10 or 12 minutes sends the majority of the bees with their queen into the hive above. A little smoke given at the same time facilitates the work. I close the entrance during the operation, opening it for only a moment when applying smoke now and then. After the drive is made, the upper hive with the bees is lifted off carefully and placed on a bottom-board, when it is given the same place the mother hive had occupied. The super is given at once, perhaps two of them, according to circumstances.

The mother hive may be given a new location and a queen run in at this time. Or, if desired, a queen-cell may be substituted. If increase is not wanted, the old hive is moved back; and after three weeks' time a second drive is made, the bees added to the new colony, all the time plenty of room being provided for storing honey in the supers. The plan is practically the same as transferring according to the improved method.

The brood-chambers, now free from bees and brood, are tiered up on colonies not in the best working order. More or less honey will be stored in them, and they may come very handy in supplying winter stores to the colonies that have given the most section honey and are often lacking enough stores to carry them thru the winter safely.

WHY I NOW USE FULL SHEETS OF FOUNDATION IN SECTIONS.

Our lamented friend Hutchinson express-

ed his idea of comb foundation in section honey thus: "I would rather pay five cents more per section of honey for my own use if the comb was all built by the bees with no foundation used." This was exactly my idea, and I have produced honey, tons of it, for years, using only small foundation starters in my sections. How much more money I might have made had I used full sheets all the time would be interesting to know, but will remain a matter of speculation. I am satisfied that my bank account would have made a better showing.

What is the reason for my change of practice? In the first place, my efforts to produce a better grade of honey from the consumer's standpoint were not appreciated. My honey did not bring a better price—rather the opposite. There was a reason for buyers preferring honey built on foundation: It not only looked better, was usually built out better, and fastened to the wood more securely, but it carried much better when transported by vehicle or railroad. This last is a very important point in favor of the more inferior article.

This fact was vividly brought to my mind when I bought about 200 sections of honey from a farmer beekeeper this fall—honey which had no foundation in it except very small starters. It was fine honey; the sections were not very neat, well filled out, and well attached. I scraped it, crated it in cellular shipping-cases, and carried it home in the auto over pretty fair country roads. When I arrived home and examined the honey I found one-fifth of the combs broken out. I have carried practically all of my honey from the outyards home in the auto for two seasons, and have not broken any at all. The foundation that the boxes were filled with made all the difference. I did not feel so very bad over the mishap, for we could and did use this honey on our own table, and also sold a good part of the unbroken lot to special friends who, we knew, would appreciate a good thing. It is my aim to produce a little comb honey every year without the use of foundation. We like it very much better for our own use.

It is very difficult to arrive at definite facts as to how much more honey a colony will produce when full sheets of foundation are given over the colony given starters only. I have reason to think it is somewhere between 20 and 25 per cent. I am satisfied that it is a good investment to fill every section with foundation—extra-light section foundation—no other should be used. The cost is half a cent per section, or thereabout. If on an average we obtain 50 lbs. of comb honey per hive, the cost of



the foundation would be 25 cents; and if ten pounds of this honey is owing to the use of the foundation in full sheets, the 25 cents represent the cost of the ten pounds

gained to us. Because it is profitable to use comb foundation in sections is the second reason why I have changed my practice.

Naples, N. Y.

## OSWALD ST. JOHN GILBERT, A "BEE KING"

BY LESLIE BURR

Who is the most extensive honey-producer today? How many can answer?

My acquaintance with extensive honey-producers dates from the year 1900—the

year I attended the convention of the National Beekeepers' Association at Chicago, and there met many of the extensive beekeepers of the United States. Prior to that time I had never met any person who had more than a hundred or so colonies of bees, so it was with a feeling of awe that I took my seat at the convention among men who were large honey-producers, estimating their crops each season as so many tons or carloads. Particularly do I remember W. L. Coggshall. He sat next to me during one of the sessions, and later we talked over some of the subjects that had been under discussion. Coggshall at that time was in the lime-light as the foremost practical honey-producer on a large scale. When I met him I had a feeling that I had met one of the super-men — a man who was able to see further and go further than the ordinary mortal. Since that time I have met most of the extensive honey-producers of the United States and Cuba, but never one that gave me the feeling that my first meeting with Coggshall caused until I met Oswald

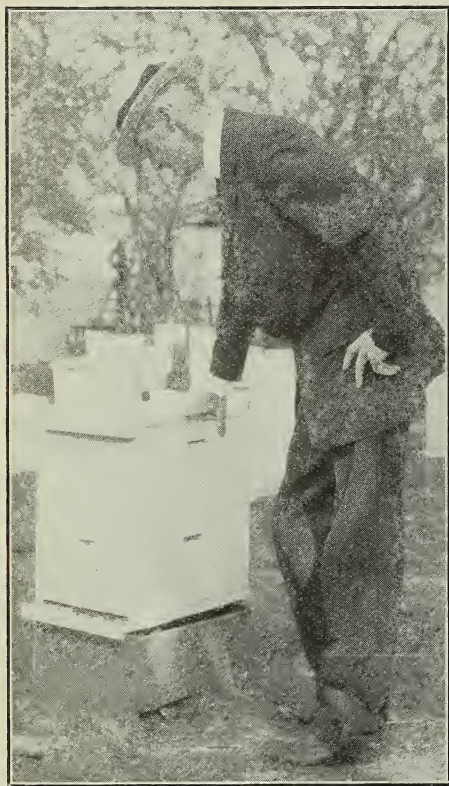
St. John Gilbert, of Honolulu, Hawaiian Islands, manager of the Sandwich Islands Honey Company.

Gilbert, even tho he is known in the



Oswald St. John Gilbert, of Honolulu, manager of the Sandwich Islands Honey Co.





Reading the record of a prize queen.

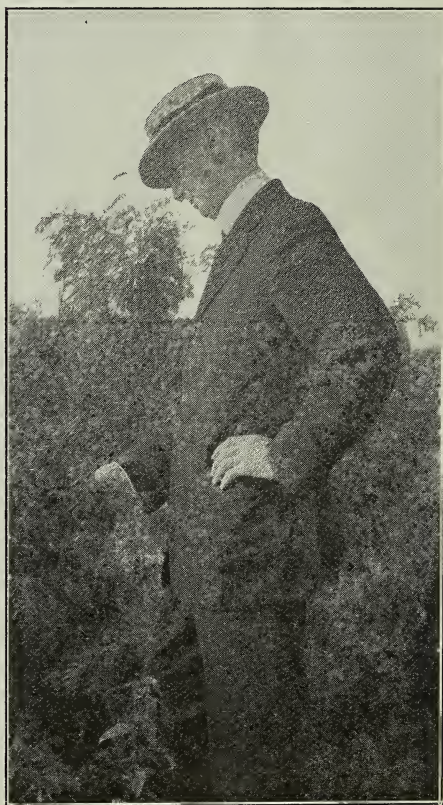
Hawaiian Islands as the "Honey King," is, like most truly great men, modest. He has always made it a rule to avoid publicity, and so for that reason his name is practically unknown to beekeepers outside of the islands.

At the present time Mr. Gilbert has on the island of Oahu about one hundred apiaries. As to number of colonies in each apiary, they will probably average up with those of the extensive beekeepers of New York and Colorado—perhaps 100 to 125.

Another thing that will, perhaps, be a surprise to those that think a hundred colonies of bees sufficient to occupy one man's attention, is that the bees are but one of several business ventures in which Oswald St. John Gilbert and his brother, Lee St. John Gilbert, are jointly interested.

I spent one entire day with Mr. Gilbert visiting a few of his many apiaries, and it was one of the most pleasant days of my life. He is a prince of good fellows, and one whose good nature always remains on top, even tho the roads are rough. He is of English parentage, born in Australia;

and so while he is not an American he is the nearest thing to one. His entry into the ranks of the honey-producers was one of those matters that just naturally happen. The particular event that was responsible occurred one Sunday morning in 1893 when the trade winds blew a stray swarm of bees into the dooryard of the Gilbert home. Lee St. John Gilbert, Oswald's brother, decided that he would hive the swarm; but those particular bees had no desire to be hived, and it was not until the operation of hiving them had been repeated six times that the bees made up their minds that they had in fact been hived, and decided to remain. Both of the Gilberts at that time were innocent of any knowledge pertaining to bees or bee culture; but after the trouble they had taken to hive this particular swarm they were determined to see what could be done with the bees. With a copy of the *A B C of Bee Culture* as their sole guide, and their lone swarm of bees as a foundation, the Gilbert brothers built up the greatest chain of apiaries, and the best system of apiary



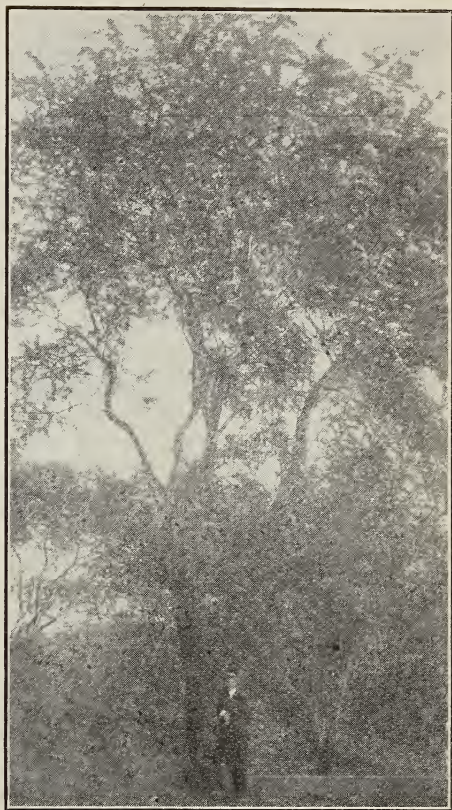
Mr. Gilbert considers the gluebush a great forage-plant for stock.



management, that is to be found. Part of this system of management is the feature that puts an end to the rival beekeepers in the territory they occupy. This has been accomplished by purchasing the absolute and exclusive right to place bees in the territory they desired to make use of. On the island of Oahu they have complete control of all the island except in and about the city of Honolulu. Honolulu being a city, and having thousands of small property-holders, it would be impossible to control that territory. (In the event that any person may think of coming to Honolulu I will state that at this time the Japanese at the present time have the Honolulu territory overstocked, there being about twice as many colonies as good management would dictate.

The Hawaiian Islands, while but small patches of soil in the center of the Pacific Ocean, are the home of wealth and big business. Big corporations are the rule. In this land of big plantations, honey production was at first looked upon with amusement. To use Gilbert's own language, "For the first seven years we were the joke of Honolulu. That there could be money in honey production was beyond the wildest conception of the average islander." But such was not the prevailing opinion after the first few years had passed, and today one of the richest bankers in Honolulu is interested in honey production, and owns a large chain of apiaries on one of the islands.

Honolulu, H. I.



Nine-year-old algaroba-tree.

### THREE BEE-TREES HAVING TOP VENTILATION

BY W. H. CRAWFORD

On page 1019, Dec. 15, 1915, the editor says: "For it seems to be a fundamental principle that hive entrances for colonies in winter quarters should be at the bottom, primarily to hold the warmer stratum of air that naturally rises to the top, and is confined because it cannot escape." This reminds me of three bee-trees I found in middle Texas in the spring of 1892. The first one was a Spanish oak that had been broken off six feet above the ground, having a hollow ten inches in diameter from the top to the ground. The bees entered at the top, and began to build their nest two feet below, and continued the combs to the bottom, using the opening at the top of the stump as their entrance.

The second one was a post-oak tree about the size of the first one. It had been broken off four feet from the ground, leaving a stump with a hollow four feet long and

ten inches in diameter. The bees entered at the top, and occupied the entire space.

The third was a live-oak that had been broken off twenty feet from the ground, with a hollow twenty feet long, and averaging nine inches in diameter. The bees entered this tree at the top as in the first and second, and began their nest two feet below, and had built nice straight combs seven feet long. The combs showed that the bees had occupied this place for three seasons at least. Notwithstanding this tree had an opening at the ground four inches in diameter, and one at the top six inches in diameter, thereby allowing a current of air to pass up thru the tree, and also allowing rain and snow to fall directly upon the bees, nevertheless they were a prosperous colony when I found them.

I cut this tree off below the combs, and hauled it to my apiary of twelve colonies,

and stood it up by another tree, allowing it to remain there until the colony swarmed, which it did two weeks later, on May 1. Soon after this I transferred the combs and bees from this hollow log into an eight-frame hive, filling five frames with brood and three frames with combs nearly full of honey.

The bees in all three of the trees described were healthy and prospering. No. 1 and No. 2 had large openings at the top, but none at the bottom, but No. 3, having a large opening at the bottom and one at the top—entire top of hive off winter and summer—makes me wonder how a colony of bees could prosper in such a place, for it rains, snows, sleets, and freezes in that locality. I have seen it as cold as fifteen degrees below zero there, and *often* as cold as ten degrees above.

I have sometimes seen bees winter well in hives with long cracks near the cluster, and come out booming strong colonies in the spring.

So I am forced to conclude that bees have a far greater capacity for adjusting themselves to their environments than we usually think.

Last August a fine swarm clustered on a limb of a cottonwood-tree, twenty feet from the ground; and the scouts, failing to find a place that suited them better, at least failing to convince the swarm of the fact, they

agreed to make that limb their permanent abode. "Let come what may, we will do the best we can," they said, and so they did. When I took them down, Sept. 15, they had three combs of brood, 6x10 inches wide, and other small pieces besides. The wind had blown upon them, and some rain had fallen while they were there, and robbers had passed that way; but they had conquered them all, and were hastily preparing to make a stand against the attacks of the approaching winter when I took them down. They seemed glad and thankful when I put them in a hive and gave them combs of brood and honey, besides what they had, fixing them up snugly for the cold wintry days drawing closer all the time.

Not a bee offered to sting me during all the manipulations in locating them in their new home; and I was equally kind to them, not killing more than a dozen, perhaps, in the whole transaction. They were well-marked three-banded Italians; and by the way they acted I am compelled to believe they are a colony of *very* intelligent little folks.

Let my purpose in writing this article should be wrongly interpreted by some, I will add that I perfectly agree with the editor of GLEANINGS in his views as set forth in the statement quoted at the beginning of this paper.

Roswell, N. M.

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## TWO-POUND SECTIONS INSIDE STANDARD FRAMES

BY W. F. COX

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I am enclosing a sketch of an experiment I made this year with standard Hoffman frames and special sections of such a size that four will just fit inside. I find that my bees like them much better than the regular sections. As is well known, bees much prefer working in the frames to that of sections, and will store a much greater amount of honey. I think it is largely due to the fact that they like to work in large units.

The advantages of this plan are partly due to the deeper section and partly to the wire-screen separators thru which they pass. The screens also permit them to cluster closely when cool days come.

One can use these frames of sections for feeding very nicely, and there is no real objection that I can see to using them for brood-frames in a pinch. The average person cares but little whether his section is one or two pound.

Danville, Va.

[The two-pound section is not new. In fact, the first sections that could properly be called sections were about two pounds in weight when filled. They were rather thicker in proportion than yours, however, and of course the details of construction were different. We do not know that we have ever seen exactly the same idea. The nearest to it is the small mating-hive frame, three of which fit into a Hoffman frame for the purpose of getting the combs drawn out and filled with brood. No effort was made, of course, in this idea to secure comb honey.

There is one feature that we should be a little afraid of, and that is the greater fragility of such combs. It seems to us that they would require such careful handling that shipping them any great distance, or possibly even a short distance, would be almost out of the question. We know that it is very difficult indeed to ship full-size combs of honey—so difficult that it is al-



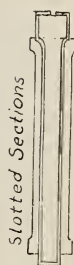
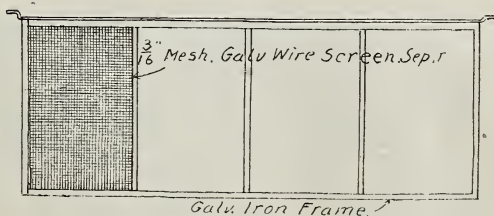
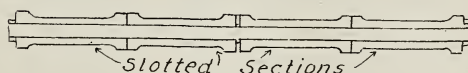
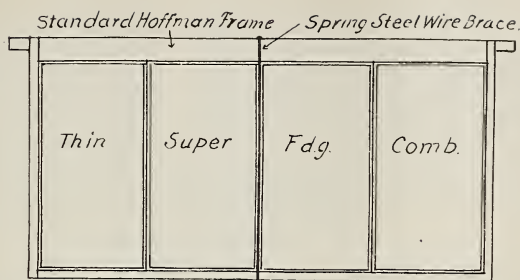
most never attempted. We have found that it is difficult to ship even shallow frames of honey. This two - pound section, less than four inches wide, and nearly twice as high as the ordinary section, and also thinner proportionately, would break rather easily, we are afraid.

Of course, not having had any actual experience with the idea in question we may be mistaken. We realize that it is not always a good plan to raise objections without having actual experience. However, we mentioned our fears to our correspondent, and his reply follows.—ED.]

The points raised are to be considered; but is it not a fact that the comb in shallow frames and standard frames break from the top-bar because of the great distance from the end supports? and isn't it true that the sides of these two-pound sections, being less than four inches apart, support the comb about as well as the sections of greater width

and less depth? I am a constructing engineer, and my line of work leads me to the theory of these points, which I have reasoned out as above. Therefore I believe you will find that an eight-inch section will ship all right.

Danville, Va., July 6.



## WHAT'S THE NEED OF FOUNDATION, ANYWAY?

### Short Cuts Sometimes Necessary

BY E. J. LADD

Verily necessity is the mother of invention. Time, the present; place, the mountain, miles and miles from nowhere; scene, a mountain apiary; scenery, a hillside up and up the mountain, and, as far as the eye can reach, acres and acres of fireweed, elkweed, or willowhart; in the foreground, 100 colonies, each 2, 3, 4, or 5 supers high; a rough cabin for the beekeeper (a beginner), who, nearly bereft of his senses thru lack of necessary supplies (a fair example of lack of preparedness), made the scribe welcome, and unburdened himself to a willing listener. Somewhat thus ran his story.

The bees had been carried to the present location over trails—no roads; blankets, tools, and a grub stake, and a few bee-supplies entirely inadequate were also packed in, and the season opened, and the flow was on,

Supers were filled rapidly, and others substituted, till, presto! all foundation for starters was exhausted; my host was in a quandary. Supers were filled with empty sections, placed on hives, and then trouble commenced, for the bees had the supering habit, and in a few days combs were started in all directions, mostly across from separator to separator. This was the situation, when on the scene arrived yours truly. After some cogitating we took stock, and found some wax, toothpicks, a cover to a lard-pail; then a small bed of coals made going easy. As soon as sufficient wax was melted, toothpicks were dropped in, and then one was placed straight in the center of the top of each section. They stuck well, and the process was rapid. Supers were filled and placed on hives.

On examination the next day we found

the bees had accepted the "starters," and that trouble was over. My stay was of sufficient duration to see some fancy finished sections, straight and smooth, sealed, and fastened to the edges. What more could any one ask? This stunt worked

successfully, and the mountain beekeeper was feeling better; but, listen! If any of you Easterners get some sections of mountain honey with a toothpick, kindly admit that it didn't hurt the sample. Blame it on to me.

Portland, Oregon.

## TWENTY FOR A START

BY MORLEY PETTIT

The first summer course in beekeeping was held at the Ontario Agricultural College, June 12 to 16, 1916. There were about 20 in attendance, which was a good number considering the busy season and

Vice-president of the Ontario Beekeepers' Association; Morley Pettit, Provincial Apiarist, and Geo. F. Kingsmill, Assistant to the Provincial Apiarist.

The work was concluded to supplement



Members of the first summer course in beekeeping at the Ontario Agricultural College.

the fact that backward weather had put all farmers behind with their work.

The speakers included Mr. Frank C. Pellett, State Apiarist of Iowa; Mr. F. W. L. Sladen, of the Central Experimental Farm, Ottawa; Mr. James Armstrong,

the winter course, applying in the apiary the things learned in the classroom. Members of the class were expected to supply themselves with veils and smokers, and were given apiary practice.

Guelph, Can.

## HONEY METHOD OF INTRODUCING — A NEW WRINKLE

BY ROY D. TAIT

I have noticed Mr. Baldwin's reference to introducing queens daubed with honey. I have a way that has never failed me, nor has it failed any one I have induced to

try the method. It is simple, quick, and absolutely sure.

After dequeening I hold the caged queen in my left hand, pry out the little nails



that hold the screen on the cage, and at the same time hold down the screen with my left thumb. With a small spoon in my right hand I scrape out of one of the combs a spoonful of the bees' own warm honey. I let the queen crawl out of the cage and daub her as she comes out with the warm honey, bits of wax and all, and let her roll down between the frames, put on cover and the job is done.

I introduce the new queen immediately

after the old queen is removed. It makes no difference whether the new queen is a virgin or a laying queen, nor does it make any difference whether the colony has cells or not. She is always accepted.

The new queen is thoroly daubed with their own honey; and after they get her nicely cleaned off I suppose she has the same odor. Anyway she is always accepted.

I have just introduced twenty-six queens without a miss.

Hornbrook, Cal.

## THE ADVICE OF JOB'S FRIENDS

BY R. F. HOLTERMANN

When we look at the medical profession, and the diversity of remedies they prescribe, it does not seem out of place to lose all faith in them. When we look at our apian doctors there appears to be a similar condition. Since my article appeared, asking for the advice of those who have cured European foul brood much has been said in GLEANINGS upon the subject, and the experience given differs widely. To this conclusion, however, I have come, that the diversity of opinions and experiences advanced only go to prove that this disease is a fit subject for investigation by Dr. Phillips, of Washington. I have no doubt that, with the financial help he has, and the natural ability he possesses as an investigator, he is in position to solve the problems involved, and leave the apicultural world the richer for his investigations. The work he has done in connection with the wintering of bees has proven this.

Let me make an apology for saying anything which would justify any flippant remarks about Job. We are so much given to imitation that the name Job is used in a way it should not be. Few of us (I am not) are worthy to be compared to this man, and his life teaches us that God in wisdom allowed certain things, many things, to come into his life to make him understand himself better and know God better. The climax is reached in that passage, "I have heard of thee by the hearing of the ear; but now mine eye seeth thee. Wherefore I abhor myself."

In the articles already referred to, and out of which I am to find such consolation and edification, we find a very great difference. We have on the one hand almost nothing done; then the removal of the queen, and, in the case of George H. Rea, page 273, the shaking of the combs. Mr. Rea says, "If the infection is general in the apiary, which is probable in an out-

break of European foul brood, all colonies are shaken in order to run no risk on those that do not show it," etc. This view rather agrees with what I think ought to be done to deal with the disease in anything like a scientific way. My opinion still is that all diseased brood should be removed from the bees to prevent their contact with the germs in clearing the dead larvæ from the cells.

However, I have received some valuable and kindly advice from beekeepers not at all agreeing with Mr. Rea and myself; and there is such a great saving from shaking and melting combs that I shall likely follow that plan if the disease shows up in many colonies. If only a few show disease I shall continue to remove all diseased brood from the hives.

As to Italianizing, that had already been done, aiming at getting disease-resisting strains, as, for some years, owing to the prevalence of the disease, I have been expecting to have to battle with it sooner or later. I still consider the conflict in which I am engaged quite as serious as I expected. It is no child's play with seven apiaries of more than 700 colonies, and the disease found in almost every apiary.

Among the communications received is one from P. W. Stahlman, West Berne, N. Y. As Mr. Stahlman writes in a very catchy way, driving his points home, I shall be pardoned for using his own words. The letter, dated Feb. 8, 1916, is as follows:

I am not writing for any bee journal; but when I read your article I could not help feeling that I might assist you materially in your work with the disease; and what I am giving to you I give free-handed, as I have always considered your writings well worth reading, as they come direct from the shoulder, and from an experienced beekeeper. Mr. Crane tells you the shiftless beekeepers may well regard this disease as a serious matter if not an actual calamity. I say amen to that.

In the February issue of *Gleanings*, Timberline Riggs gives a cure, but says in substance he does not claim that it will hold good in all cases and in all localities, and I say that also is true. And so it goes. From time to time men of experience will tell you things which do not agree, and yet in one way or another all may be good sense.

But when you once get thru the mill, and the grist is ground [A painful operation, I think.—R. F. H.] you can rest assured that your own experience will be your best doctor [Thanks. I think it will be, in my own estimation, at least.—R. F. H.] I have been in this locality ever since Frank Boomhower was our first inspector; and to say that I have seen the disease in all its forms and ravages is putting it mildly.

#### THE TREATMENT ATTEMPTED.

We bought up all the old box-hive bees we could get, at a low figure, and drummed the bees out into modern hives, and in so doing we helped to a great extent to clean up the disease, for the brood in these same box hives was generally in a diseased condition, and, with the old black bees, a favorable pasturing-ground for European foul brood.

I have been thru this disease thru thick and thin, night and day. I was here when the disease was in its youth in New York, and I am here yet. I have seen and handled it from a light case to complete rottenness; and for my part I can say that I do not care to go over the ground again—at least not on as extensive a scale as I have done. In our treatment we shook and we drummed the bees. We fumigated with formalin, and we fumigated with brimstone. We bathed the combs in a strong solution of salt water. We put the bees on starters as well as on full sheets of foundation. We doubled up colonies, and we tiered them up as many as four bodies high to get strength. At that time our inspectors were new in the work of the treatment of European foul brood, and all or nearly all recommended shaking as the only means of eradication. We washed our hands and tools in carbolic-acid water. We made all new hives, etc., because we were told that anything that was infected must be cleaned up, and fire was the remedy, even to the burning of bees in some cases.

#### WHAT HELPED.

Not until we began to tier up to get strength did we begin to see that there might be some way out besides melting up all combs, getting rid of all the honey, making comb foundation or buying it, which was a great expense and muss.

We today know by experience and proven facts that even our authorities may be wrong in some things, and this method of cure was one of them. I am speaking from experience, not theory; and I will say the field has been well covered; and where the disease is not just making its appearance it would be wisdom to follow the advice of those who have fought the battle well before

present experiences were available, the benefit of which I will now offer you. This advice has been given you before, but perhaps I can say it in a different way so that it may soak in better; and the same is my very best advice that experience has taught me and many others in this vicinity ever since the disease struck us fairly in the face.

#### THE CURE.

1. Be prepared for the disease, and before you enter into the actual battle by having your colonies hit by the disease, by getting good young Italian queens in your apiary. In such a case you will not be hit so hard. Get these queens from a reliable man in a locality where the bees survived the disease. Know that he is honest in furnishing you with his best immune stock (a hard matter). You could get a breeding queen of such, and do the trick yourself—breed the queens, but better if you can do the former. When the disease appears, do not let it get bad before you attend to it, but either shake or change combs of brood to the upper story, and keep the queen below on clean combs, and have the colony strong in bees, and this will save you combs and honey; and once you get all Italianized you will not have much to contend with more than to see that young and prolific queens are in all colonies. Then the work is more than half done.

Of course you will occasionally find a mild case after either treatment, when action should be taken at once.

Here is a good thing in connection with the treatment: Do not have a lot of weak colonies around. Avoid all things that arouse the apiary; do not work with the bees out of curiosity, but attend strictly to the treatment in one way or another as given heretofore.

Every fall, if any colonies are affected, take them up, especially the weaker ones. This is a great advantage.

We have had no disease to speak of for three or four years; but once in a while a very light case appears, the origin of which we do not know; but it is there nevertheless. Such a case we treat at once, and with that it generally ends.

#### BEES MUST GATHER DURING TREATMENT.

Of course it is conceded that bees need to be getting honey when treating them for the disease, otherwise they must be fed.

The object of this is not to cure the disease but to help the colony prosper again. And let me say right here you cannot treat the colony and get as much honey as tho they could go on without being shaken. [Just what I felt sure of.—R. F. H.] But something must be done, and your very best weapons are:

1. Good young immune Italian queens.
2. Strong colonies.
3. Mean business when you attempt to stamp out the disease. [I suppose a man who expects his wife to get up and light the fire and get breakfast while he would be resting in bed would not do for the above.—R. F. H.]



Do not imagine you can clean up everything at one stroke, nor absolutely even in one year. It will crop out occasionally. I nearly always kill the queen of a colony that tolerates the disease, and replace her. I have bought small lots of bees near me to keep the disease from being harbored there. I do not believe that bees must rob the infected honey to get the disease, as it can surely be cured and still retain the combs. This is sufficient proof. Also shaking on starters or foundation does not always cure. [I know that from experience.—R. F. H.] Oh, no! Do not think that. I treat both ways. Again, by dequeening we shall have our combs yet. Any one can see them in the breeding season, full of as nice brood as ever was. I say again, therefore, do not burn good comb.

I will not say do not shake at all, but why should we when it is not necessary?

Mr. Reuben V. Cox, Sloanville, N. Y., also kindly wrote the following:

I am only a small beekeeper compared with you, or only about a quarter your size, having 200 colonies; nor have I stamped out the disease; but I own the yard into which European foul brood was first introduced into New York by nuclei brought from the South, probably in 1890. I bought the apiary in 1908. I have had perhaps 24 or 25 cases, and none in the past four years, so I am one from whom you wish to hear. There are other apiaries around here that have gone thru the same. For instance, I worked for E. W. Alexander, seven miles from here, when he had only a few cases. I am told he has had more in the past few years. I think the disease, like most others, varies in severity; and I think Dr. C. C. Miller's bees must have had a very mild form to be able to cure it in about a ten days' gap in brood-rearing.

E. W. Alexander, you will notice, recommends 25 full days to be sure that every cell of brood, worker and drone, is hatched. He told me he had lost, from first to last, over

1000 colonies; yet, shortly after 1900, he secured from 25 to 35 tons of honey from his own apiary of 600 colonies. On the other hand, one D. Kimbel, only about two and a half miles west of here, kept and still keeps about 100 colonies, part of which are in box hives. So you can see none of the usual treatment could be given in his case. Yet I know the disease has been on his ground. Here we have sometimes three honey-flows—a light one in June from clover; sometimes a good one in July from basswood, and usually a good one in August from buckwheat. I can cure severe cases by the Alexander treatment in any of these flows. Mild cases will sometimes cure themselves; but I find it hard to winter such cases; and generally the first of the buckwheat flow I kill the queen, and, to prevent robbing, a few days before that flow closes, sulphur the bees, extract the honey, melt the combs, and burn the frames and scorch out the hives. I find that the money from the honey and wax about pays for the new colony I buy in the spring. Some might object to selling honey from the diseased bees; but I consider it no worse than selling it after the Alexander treatment, as in either case the bees polish the cells. European foul brood seems to decrease in severity as the bees become used to it in any locality.

If the bees can clean out diseased brood, and put the cell in a condition not to transmit the disease to the next larvæ, they must secrete a disinfectant. If a cell is so cleaned before storing, either honey or the queen laying in it, then it must be a safe method to remove the laying queen until all cells have been cleaned by the bees. The success of the Alexander method would sustain the above. I am looking forward with interest and some anxiety to the developments which will take place among our own bees, and, if able, will give the result of my experience.

Brantford, Ont., Canada.

## OVER ONE HUNDRED GATHER AT CHICAGO TO LEARN FOUL-BROOD AND SWARM CONTROL

BY KENNETH HAWKINS

Over 100 beekeepers of Indiana, Illinois, and Wisconsin gathered at 3000 North Cicero Avenue, Chicago, on Saturday, July 15, for the first annual field meet of the Chicago-Northwestern Beekeepers' Association, where they listened to prominent beekeepers of Illinois and Indiana. N. E. France, president of the association, was not able to be present.

A feature of the day was the picnic luncheon in charge of Secretary John C. Bull and President E. S. Miller. Following

dinner the events of the day occurred in the following order, with Mr. Miller's system of swarm control featuring: Inspector A. L. Kildow's methods of handling foul brood. A. Stanley, of Chicago, told how he reared queens, as did Kenneth Hawkins, of Plainfield, Ill., who also gave his plan of queen introduction by his new queen-cell method.

An excellent demonstration with live bees was given by Mrs. Coppin, who, without a veil, gave some beginners several thrills when she opened one of Mr. Bruner's

strongest colonies, found the queen, and passed the frames out thru the crowd.

Mr. Miller's method of swarm control, which was the feature of the afternoon talks, is as follows: When it is determined that a colony is about to begin swarming preparations, one frame of brood with the queen is removed from the hive and placed in an empty one. This latter is set on the old stand, and the rest of the room filled out with empty combs or full sheets of foundation. The frames of brood and honey, with the space of the one frame removed,

filled with a comb or foundation, is raised over the hive containing the queen above a super, which latter is also above an excluder. Altho this method requires a great deal of careful manipulation on the part of the beekeeper, Mr. Miller has followed it for some time, and handles all his colonies in this manner, and has controlled swarming in the past few years to a negligible minimum. It is also used at his outyards as well as in the home apiary. I believe Mr. Miller handles his bees without help.

Plainfield, Ill.

## SWARM PREVENTION IN OUT-APIARIES RUN FOR COMB HONEY

### The Importance of Requeening in the Fall

BY M. N. CUNNINGHAM

For the past five years I have kept from one hundred to one hundred and fifty colonies in outyards from four to nine miles from home. I have a very small percentage of swarms—perhaps not over 5 per cent.

I begin in the fall by replacing any old or failing queens. Old queens are one of the greatest causes of swarming while young queens are very little inclined to swarm. My plan is to visit each yard about once a week after the colonies start brood-rearing in the spring. As some begin to get strong in young bees I equalize by taking combs of hatching brood from the strong to the weak.

We usually have sufficient honey coming in by April 15 to cause swarming. About this time the bees show their crowded condition by hanging out at the entrance. I proceed to ventilate such colonies by raising the hive from the bottom-board, in the rear only—with a wedge-shaped entrance block or a small stone or stick—from one-fourth to one and one-half inches according to the weather and the strength of the colony. This makes it possible for the bees to live in the hive and proceed with their work instead of having to stop work and cluster outside to keep their combs from melting down. Is it any wonder bees swarm under such conditions? With means of ventilation they can go on with their labor, and the hive can be kept full of brood in comfort while the honey goes into the super. As the weaker colonies begin to cluster and get strong I raise them at the back also.

From now on I examine only by walking behind the hives and tipping them up from behind, blowing a few puffs of smoke between the bottoms of the frames and noting the conditions as to room, brood-cell cups,

and queen-cell. All of this can be easily done after a little experience.

If the hive is crowded with brood and the main flow has not yet started, I build up my weak colonies with sealed brood, probably only one frame from a hive, replacing with an empty frame or comb foundation, so both colonies are benefited. If a hive is very strong or shows cell cups containing eggs or larvae, I take more brood and give more room and plenty of ventilation. In case of a colony containing cells sealed or nearly so, practically the only cure is to take all brood away and give empty space, but if one is a little careful this need not happen often.

As soon as our main mesquite flow starts I give one super, and when this is half filled I put another on top, not underneath, so the bees finish what they start before going above and are not discouraged by having the first super so far from the brood.

The first few days of the main flow is my rush time. The colonies that start work in the supers seldom cause trouble, but a few start cells and want to swarm, and those few get nearly all their brood taken away so that by the time the new combs are filled they have forgotten they want to swarm.

I make nearly all my increase later from nuclei and build them up on dark honey in the fall.

After the main flow is started I look the colonies over by lifting the hives from the rear as before about once a week or perhaps two weeks and add supers as needed. This is done merely to save a few swarms from colonies whose queens are failing and might swarm. To these I usually introduce a virgin or ripe cell. These examinations are quickly and easily done—so easily that I know the condition of a colony by the time



a man opening a hive would have the cover off.

There are two objections to this way of procedure, but they are so unimportant that I do not consider them. First, the bees

build burr comb below the frames, but it is necessary only to take a hive-tool and scrape it off to handle the frames. Bees also jump out of the back of the hive and sting the shins. A puff of smoke cures that. Carlsbad, N. M.

## WHY SUGAR-FED HONEY IS NEVER FOUND ON THE MARKET

BY WM. COX

Last spring Mrs. Allen asked how many pounds of syrup are required to make a certain number of pounds of sealed stores. Dr. Miller answered that 5/7 of a pound of sugar is about equivalent to a pound of honey, or in substance that she would get a pound of syrup stored for each pound of thick syrup fed. Several years ago I asked Dr. Miller about the same question, and in his answer he thought the number of pounds I would get stored would about equal the number of pounds of sugar fed. I suppose he has forgotten more about bees and honey than I ever knew, but both his estimates are certainly too high.

In writing about having sugar syrup stored in the comb to sell for honey, E. W. Alexander said: "Aside from any consideration of fraud or the pure-food law, there is no money in it." Dr. Phillips says, "Of course this has been tried; but there is nothing in it, financially or otherwise."

If I can buy sugar for 5 cents a pound, and get it stored in the comb and sell it for 15 cents a pound, it looks to me, aside from any consideration of fraud or violation of the pure-food law, like a pretty good investment.

When I asked Dr. Miller that question I was trying to post myself so I would know how to talk to a lot of people who think nearly all the honey offered for sale is made from sugar.

I sold a man a pail of honey. He said it all went to sugar. He did not openly accuse me of fraud, but it was pretty evident he thought the honey was made from sugar. Neither he nor his relatives who had bought of me ever bought any more.

A lady came to my place to get 20 pounds of honey for herself and 10 pounds for a

friend. She said, "We don't want to buy it at the store, for that is this sugar-fed honey." I told her what the United States Department of Agriculture had to say about sugar-fed honey, and that the Department has a beeyard a few miles out from Washington, in charge of bee experts who are gathering information for the benefit of farmers and others who keep bees. I told her that from a little experience I had in feeding up weak colonies I thought we should have to feed on an average about three pounds of sugar for every one-pound section we could get the bees to fill, and the price of a pound of honey would not pay for the sugar. I may be a little off, but I guess I am about as near the mark as Dr. Miller.

I also told the lady that the honey in the store was pure bee honey, but my honey had been left on the hive for the bees to ripen, and it was probably a better grade of honey than she could get at the store. I told her a lot of other things. If there comes a time I cannot sell all the honey I can produce, I intend to write some things for the local paper.

Oakland, Ill.

[There is certainly a danger that uninformed persons finding that a beekeeper buys large quantities of sugar to feed his bees might jump to the conclusion that honey, especially honey that has granulated, is made from sugar syrup. Producers cannot be too careful in matters of this kind. There is need of constant education. The truth never hurts. Explain that honey produced from sugar is a possibility, but not a paying proposition, and consequently there is none on the market.—Ed.]

## NOW WHO'S RIGHT?

BY M. T. PRITCHARD

In compliance with Dr. Miller's request, page 521, July 1, I submit the following report:

A frame of eggs nearly ready to hatch

was taken from one of our breeding-queen colonies, and a small patch of the eggs carefully removed from near the center of the frame. It was then returned to the colony,

and a close watch kept to ascertain when the queen found these empty cells and laid in them.

The queen laid in these cells between 8:30 and 9:30 A. M., Aug. 3. Two of the eggs were hatched at 7 A. M., Aug. 6; the rest within an hour.

These larvæ were grafted into queen-cells at 10 A. M., Aug. 7, and the last cell was sealed at 10 A. M., Aug. 11. I failed to find when the first cell was sealed; but cells grafted at the same time, but with smaller larvæ, were not sealed at this time. From this I concluded that they had been sealed only two or three hours. These larvæ, which were about 26 hours old, were larger than we use ordinarily.

The first virgin emerged from her cell at 6 A. M., Aug. 18, and the last one 4½ hours later.

Medina, O.

[Sometimes a little dog unconcernedly bites a temporarily peaceful big dog. . . . To make a short story shorter, after some other big dog joins in the fight, the little dog wiggles out and sits by the side of the road watching the fun.

Without intending any disrespect to the other parties concerned, I claim the honor of being the little dog that started this scrap between Dr. Miller and Mr. Pritchard (the two big dogs), and I am now sitting by, watching the fun.

From my point of view it appears that Mr. Pritchard has a little the best of his opponent. I have admitted that my original statement, page 403, May 15, is probably extreme in that six to eight days between the hatching of the egg and the sealing of the cell is surely beyond the average length of time. But I still believe that Dr. Miller's estimate, "never more than five days," is also extreme in the other direction.

Take Mr. Pritchard's figures: In spite of the hot weather, the time between the hatching of the eggs and the sealing of the cells was about an even five days, or possibly a little more; and the total elapsed time from the laying of the eggs to the emerging of the queens was just about fifteen days. What would these figures have been under less favorable circumstances, cool weather, weaker colony, etc.? Sic 'em, Dr. Miller!—H. H. Root.]

## THE SEASON IN SOUTH FLORIDA

BY A. E. AULT

The usual time for orange and grapefruit to bloom in south Florida is from Feb. 25 to April 1. Last season, probably owing to cold and dry weather, there was scarcely any surplus orange honey, tho the bloom continued a month later than usual. Saw palmetto, which blooms in April and May, gave good returns in a few favored locations, but as a rule the crop was short.

The conditions that seemed unfavorable for the secretion of nectar from orange and palmetto proved favorable for seagrape, black mangrove, and cabbage palmetto. Black mangrove began in June, and continued till about Aug. 1. The seagrape and black mangrove grow only along the coast. Toward the last of May seagrape began to yield, and continued thru June. The honey from this plant is of fine quality. A peculiar feature of it is that, as the light reflects from the honey, it shows a decidedly green color.

My best average this season was produced at a small apiary of 26 colonies located at Cortez, a fishing town near the point of a narrow peninsula. There is not much fruit bloom in reach of the bees, nor is it a first-class location for saw palmetto. But to offset this the bees have access to a vast

range of seagrape and black mangrove; and, altho they cross the water to outlying islands to secure the greater part of this honey they never fail to "deliver the goods;" and I have secured from this apiary as much as 200 lbs. average. My record of honey taken from this apiary for the season is as follows: May 31, saw palmetto, 400 lbs.; June 12, seagrape, 680 lbs.; June 28, black mangrove, 1060 lbs.; July 14, black mangrove, 1300 lbs.

At the out-apiaries I use a 10x14-foot tent with 4-ft. sides. I use no ridge-pole, but, instead, have a long overrope. At the end of each gable two knots are tied in the rope 1½ inches apart. The tent is supported on two poles 8 ft. long, having a slot at one end which fits between the knots at the gable of the tent. In practice we use the tent-poles outside the tent, as they are more convenient to set up and take down. The tent-pins are left in the ground from one visit to another so that the tent can be set up in a very few minutes. With a large screened window on opposite sides, the room is light and airy. A small hole at the point of each gable serves as a bee-escape.

### THE EQUIPMENT.

I use an automatic two-frame extractor.



Two discarded supers, well-braced, act as a stand for the extractor at the end of the tent where two posts are firmly set, to which the extractor is braced. A small barrel is used for the cappings. An old Novice extractor with the basket removed makes a good strainer can. A double thickness of cheese-cloth is put over the top, and over this a fine wire screen. From this the honey is drawn into the cans.

I always use a strong light wheelbarrow when collecting honey from the hives. This is wheeled in and out of the tent thru the loose flap at the end. Two light carrying-boxes each of the capacity of a ten-frame super are used on the wheelbarrow, kept covered with a heavy robber-cloth. Boxes used for the square 60-lb. honey-cans make a good carrying-box. I put two together, removing the inner side, and nail a good handhole at each end, with also a cleat across each end inside for the combs to rest on. Such a box is strong, light, and just the right size.

On July 14 with such an outfit as I have described, my 18-year-old boy and I drove seven miles to the Cortez apiary, and by 9 A. M. had the tent set up. By 2 P. M. we had extracted 1300 lbs. of the finest mangrove honey, and had it ready to load on the wagon. In the mean time we had our dinner, cut the weeds and grass about the apiary, made an increase of two colonies, and waited on several parties who came to buy honey.

Aug. 9 I visited this apiary again and found many of the supers full and others partly full of white mangrove honey. I estimated the amount then in the supers at about 800 lbs. If I take 500 lbs. of this as surplus it will make an average of a little over 150 lbs. per colony.

#### MY WAY OF MAKING INCREASE.

I have also increased from 26 to 37 colonies. This was done by a method which I

have practiced for years. It tends to prevent swarming, and has given good results. In reviewing the bees, when they first show a disposition to swarm, as I find a colony that is congested with bees and brood, and is, perhaps, starting cells, I select one, two, or more frames of sealed and emerging brood with adhering bees, and place them in an empty hive. I generally throw a handful of grass or leaves against the entrance. When another in similar condition is found I again remove one, two, or more frames of brood as before, and add them to the others placed in the empty hive. This practice is continued until the brood-chamber is full. Besides the bees that adhere to the combs I occasionally shake the bees from one or more frames into the colony I am building up. Bees so united do not fight. Care should be taken that these built-up colonies have a good supply of honey. When the brood-chamber is full of brood and bees a super is often added and filled with frames of honey.

"Pulled queens," that is, queens just emerging from the cell, are readily accepted by these built-up colonies. Lacking such queens, a cell may be given, and they are very rarely torn down. Such built-up colonies can even be found without a cell, as when the work is well done they will build good cells of their own. Of course all such colonies should be inspected in due time to make sure that they have queens.

When formed early in the season I often secure some of my best yields of surplus honey from these "built-up" colonies. By this method we keep all colonies strong, and have no weak nuclei to nurse.

The bees along the coast have given the best results this season; but while they were busy storing seagrape and mangrove honey the inland apiaries were showing a steady gain from cabbage palmetto.

Bradentown, Fla., Aug. 13.

## SOME OF THE HONEY-PLANTS OF PARAGUAY

BY J. BROWN

Tucked away in the heart of South America is the little-known republic of Paraguay; in the heart of Paraguay is Villarica, a town of some 15,000 inhabitants, a little less than three miles to the east of which lies my present home. As I look toward the rising sun from my open-air bed-chamber my eye passes over my apiary of some fifty colonies, and pauses a moment on the gentle slope behind, thick with waving palm and orange-trees. Beyond this declivity stretches for two leagues a level

grassy plain, which I am unable to see from my position. Then comes my horizon, a 2000-foot wall of forest-clad rock, running north and south, called the Sierra de Ibituruzu. Place yourself in imagination on the summit of this, and try to picture the leagues upon leagues of crowded primeval forest that stretches northward and eastward, inhabited by strange and unknown animals, and tribes of human beings but little above them. But two days' journey on horseback, from where I write these lines,

and the traveler is in the Stone Age. Since the coming of the Spaniards, a tribe has lived there against whom has been and still is the hand of every man. Some say they are a tall race, others a dwarfish one, and the men are bearded. Their arms consist of a stone roughly shaped into the form of an ax-head. This stone is inserted in a split sapling of the right size. So rapid is the growth of wood that in a short time the head is firmly imbedded, so that when cut down the ax is provided with a handle that will not come off.

Now, these people are very fond of honey, and are, consequently, great bee-hunters. Without a stitch of clothing, and armed with their stone hatchet, they climb the bee-tree and hew their way into the coveted stores. Sometimes the native Paraguayan hears the tapping, comes up with his gun, and shoots the poor Indian dead, giving as a reason that the skins of this particular tribe are very good for making bags for carrying Paraguayan tea (yerba maté).

The native bees of Paraguay are many, and of the stingless variety. Some of them make up for want of a sting by furious biting and frantic buzzing on every part of the body on which they settle, snipping off every hair on the hands and face by the roots as if they considered themselves animated depilatories. They gather only a small quantity of honey; but this is much esteemed by the natives as a remedy.

About a quarter of a century ago Italian bees were first brought to the country. At various other times Carniolans and Caucasians have been introduced, and the bee commonly met with is a hybrid of the three varieties. Some are very gentle; but those that show any trace of yellow are very much the reverse. Besides my own, there is only one other apiary in the country run on modern scientific lines.

Our principal source of nectar is the forest-trees, chief of which are the many varieties of laurel. The lapacho (*Tecoma curialis* and *T. varia* of the family of the *Bignoniaceae*) yields a very strong aromatic honey, which, from description, seems to be something akin to that of basswood. The palo blanco (*Exostemma* of the family of the *Rubiaceae*) yields a large amount of beautiful white honey. I had a large surplus last year from sangre de drago (*Croton succirubrus*), a widely distributed tree-shrub which produces a red resin yielding the dye known as dragon's blood. This honey was almost as dark as molasses, and very bitter when first extracted. After standing in the tanks for about ten days the bitterness went away and it became very

sweet. I had no difficulty in disposing of it. Orange and banana are also good yielders.

Our honey-flow begins about August, and lasts till the end of October. About January the banana begins to yield, and there is a fall flow from various flowers till the end of April. Only extracted honey is produced here, and the honey is put up in second-hand kerosene-tins, as a rule. I tried barrels one year, but they were not a success. Kerosene-tins are cheap, and, when well washed with soda, and exposed for a week or so to the tropical sun, there is no danger of contamination. I use factory-made Hoffman frames, but the hives I made myself, some out of rosewood (*Macheraeum Sp.*), and others out of "female" mahogany (*Cedrela braziliensis*). The latter is far and away the best material, being light and durable. Rosewood hives sound very luxurious; but their weight in handling soon humbles one's pride.

#### DRONE-CELLS ON ONE SIDE OF COMB.

Some time ago Dr. Miller mentioned having received a specimen of such, and wanted to know if any one else had seen this. On going thru my extracting-combs I found no fewer than five with a patch of drone-cells on one side, all the other cells being worker. Four were small patches of about one to two square inches; but one was about four. As these combs had been stored away I am unable to say whether they all came from the same hive or not.

#### WHICH MILE IS WHICH?

In GLEANINGS for April 1, 1915, J. A. Heberle discusses this question with reference to observations made in Germany. About two miles seems to be the limit there, and Mr. Heberle quotes Mr. Goeken as saying that if American bees can fly six to eight miles it would be well to introduce such into Germany. There is evidently some confusion here. When an American writer speaks of a "mile" he means the English mile. German writers naturally mean a German mile. Now, the German geographical mile is more than four and a half times longer than the English mile, and therefore the bees fly the same distance.

Villarica, Paraguay.

#### Sure, It's Love at First Sight.

The honey method of introducing queens, page 525, July 1, is a good and sure way. I have introduced several with the best of success. The bees lick them dry, and then fall in love at first sight. And it is permanent too.

J. P. Lockwood.

Owen Sound, Ont., Can.



# Heads of Grain From Different Fields



THE BACKLOT BUZZER.

BY J. H. DONAHEY

*"Where, where did the bee sting you?" said little Arabella's mother, who was trying to stop her daughter's tears." Why, the bee stunged me, right, right d-d-down by the Presbyterian church!"*

## The Beekeeper's Faith.

BY GRACE ALLEN

Dismayed by the visionless faces  
Of town, he came back to his bees.  
"Could they know but your rapture of humming  
And quiet of shadowy trees!  
But a dawn shall yet break when all people  
Shall answer an ultimate need  
By divineness of dream that forever  
Begets a serenity of deed.  
Then men shall be all nobleminded,  
Their petty, mean gods put away;  
Then women, full-grown and large-natured,  
Shall justify faiths of today;  
Then cities shall fall out of fashion,  
While out in the cool of the trees  
With their books and their thoughts living gently,  
More men shall be keepers of bees."

## Don't Let the Bees Clean up Cappings; Press the Honey Out.

As to the advice to let the bees clean up the cappings, I should like to repeat Punch's advice to those about to marry—"Don't."

Any cleaning-up by bees is always dangerous.

Everybody thinks his own plan the best. This is mine. I have an uncapping-can wide enough to hold the Langstroth frame, and six feet long. At one time I ran the cappings thru the solar extractor, but I burned the honey. Now I put the cappings in the wax-press and press out all the honey, and it is as good as any. I have a German wax-press, and use a jack for pressure with an iron rod one inch thick and three feet long as a lever. As I could not make a box strong enough to stand this pressure I got my blacksmith to make a band out of an old wagon-tire and fit it around the box about one inch from the bottom of the box. This makes the box so strong I can have a couple of half-inch holes above the band to let the honey run out freely. I leave the cappings as long as possible in the press. The cakes when taken out of the press are laid aside until we have time to melt them. There is no honey in them worth bothering about, as I have found by putting some of them thru the solar.

To turn these cakes into wax I fill up an ordinary wash-boiler with as many cakes well broken up as the boiler will hold, then cover with water and bring to a boil to make sure the wax is all melted. I leave it in the boiler until cool, and all the wax will be on top. The last cake I had weighed 27 lbs. All my wax finally goes thru one of the D. A. Jones steam wax-extractors.

Islington, Ont., Ca.

J. S. Evans.

## How Long Does it Take to Become an Expert Beekeeper? A Bunch of Questions.

Five or six years ago a beekeeper told me it would take ten years to learn the business. At that time I thought he was crazy. I have studied books on bees for the last year; have read the A B C of Bee Culture some three or four times, and many other books. Last spring I bought four hives of bees, and now I feel very much "at sea." I now have 13 colonies, counting the nuclei.

1. I found a comb a few days ago with dead brood. Some are of a slimy mass, and some have the shape of the nymph. It does not rope, and is white. Do the larvæ ever die from natural causes? or is it European foul brood?

2. In making nuclei about May 10. how would it do to put two frames of bees and brood with queen-cell on each side of a screen division-board in a ten-frame Buckeye hive, and have one entrance at the southwest corner and the other at the northeast corner? At the time of division give each side one frame of sealed brood and one frame of honey on the outside; then in ten or twelve days give each another frame of sealed brood. If anything happened to the queen on either side, remove the division-

board and make it one hive. If both queens mated and went to laying, shove the hive 15 inches to the south and give entrance at the northwest corner. Put another hive at the north side and lift out the frames in the north side of the old hive, placing the same in the new, and giving an entrance at the southeast corner. If this plan is good, would not a screen be better than a wood division-board on account of the heat passing thru better?

Would it not be better, when one wishes to give a queen in a nucleus more room, to give a frame of hatching brood instead of empty comb?

3. Has any one ever practiced changing queens in strong colonies to prevent them from becoming exhausted—say switch the queens back and forth between a strong colony and a nucleus?

4. Could one take a strong colony of two stories and constantly rob it of sealed brood and give empty combs in the center of the lower story to take the place of the frames of brood? Would there be any advantage in this? Would it induce the queen to lay more?

Moline, Ill.

Louis O. Stone.

[The average person ought to get a fair knowledge of beekeeping inside of two or three years. This does not mean that he will know all that can be known, or that he will be competent to run a thousand colonies; but two or three years' experience ought to qualify him to operate a single yard or a few colonies in the back yard. Some people would need a hundred years to learn the business, and then they would get it only imperfectly. Ten years ought to qualify any person to get the business thoroughly, so that if he has it in him he can operate a series of outyards comprising a total number of colonies of 500 or 1000.

1. This may be a case of European foul brood or sac brood. If it does not spread, or if it disappears of itself, it is probably nothing worse than sac brood. Yes, larvae often die of natural causes. Sometimes they are chilled or overheated. Sometimes they are starved because of a lack of sufficient nurse bees.

2. The general plan here outlined would work, altho we would recommend a solid division-board of thin wood. However, the wire screen will answer very well.

The possibilities are that, if the queen on one side of the hive dies, the bees of this one side will desert and go over to the other side. We find this to be true in the case of baby nuclei that are on the same principle. For this reason alone we would advise the use of solid division-boards.

One can give a frame of hatching brood providing the weather is not too cool. This will be preferable to giving an empty comb; in fact, there is no better way of strengthening a nucleus than to give it a comb of hatching brood.

3. We are not sure that any one has tried

this plan; but we see no reason why it would not work. The one drawback is that some queens would be lost in introducing from one colony to another. A better way would be to leave the queens in their hives and have other young queens take their place when they wear out. A queen that lays continuously during the entire season will not do good work if she is shipped south and then put at the job of egg-laying again. Seemingly she has to have a rest of at least six months before she will do good work the next season.

4. The plan could be carried into effect, but we hardly see what advantage would be gained. Sometimes it would stimulate the queen to laying more eggs; but a two-story colony would give a queen, if she is worth anything, all she could do.—Ed.]

### Whose Bees Are They?

Has a man a right to hive bees on another man's premises without the owner's consent even tho he claim them as swarms from his own apiary? Can he defy the owner with impunity?

Quakertown, Pa.

A. H. Shank.

[When a swarm of bees leaves the premises of a beekeeper, that swarm is his property so long as he can keep his eyes on them and follow them to a point where they cluster again; but under the common law he can not invade another man's premises to recover the bees unless he obtains his consent.

In your case if the other party claims the bees as his, it is up to you to prove that you did not lose sight of them at any time, from the time they left your hive until they arrived at his premises. If you can not prove this to the satisfaction of the court, and if the other party refuses to let you come upon his premises, you can not very well recover your property which is morally yours. No, you can not enter upon the other man's premises without rendering yourself liable for trespass.—Ed.]

### How to Mark the Net Weight.

I think I have noticed boxes of honey stamped something like this: "This box contains approximately 1 lb. of honey. Will you inform me whether there is now any legal requirement making it necessary to stamp boxes in any way?"

Lyons, N. Y.

W. S. Gavitt.

[The wording, "This box contains approximately 1 lb. of honey," is not in accordance with the national pure-food law, nor any state law with which we are acquainted. If the federal inspectors were to get hold of a package of this sort they would probably seize it and hold the packer responsible. The net-weight law requires that the exact net weight exclusive of the package shall be marked somewhere upon the label or container. This weight under a pound should be stated in ounces; if more than a pound, in pounds and ounces.



In the case of sections the wording should be, "Not less than — ounces." The ordinary section honey-boxes now in use will run all the way from 10 to 14 ounces minimum net weight. The average of them will run about 12½ ounces. The usual rule is to sort the sections into various weights, each weight in excess of some minimum net weight. It is not practicable to mark upon every box the exact net weight, and therefore the sections are graded according to weight. All in excess of a certain minimum are put in one class; those in excess of another in another class and so on. After they are put in classes by themselves they are marked with the appropriate rubber stamp.

Whether there is a net-weight law in operation within the state, it is always advisable to mark all packages of food with their net weight or minimum net weight as the case may be.—Ed.]

#### Annual Field Day of the Worcester County Beekeepers' Association and Eastern Massachusetts Society of Beekeepers.

This year, at the invitation of the Worcester County Beekeepers' Association, the Eastern Massachusetts Society met with the Worcester County Association at the home of Mr. W. E. Parker, West Boylston, on Saturday, Aug. 5. From 11 to 5 the air hummed with the sound of bees—not the insects themselves entirely, but with discussion and genial talk about them. The day was rather overcast, but pleasant, and there was a good gathering. All enjoyed the kindly hospitality of the host. Dinner was on the basket-lunch plan, after which came the speaking.

The special guest of honor, Mr. C. P. Dadant, of Hamilton, Illinois, editor of the American Bee Journal, spoke delightfully and instructively on prevention of swarming. He was followed by Arthur C. Miller, Providence, R. I., on "What to Do Now," Mr. Allen Latham, Norwich, Ct., and Dr. Burton N. Gates, Amherst, Mass., followed. Dr. Gates spoke particularly of the symptoms of bee paralysis which has appeared lately in different parts of the country. Later he demonstrated the proper method of opening and inspecting a hive, with valuable practical advice. Mr. W. E. Winter, of Ross Bros. Co., Worcester, had a good display of Falconer's supplies, while Mr. Jepson had sent some of Root's supplies from Boston.

Josephine Morse, Sec.

South Lancaster, Mass.

#### Easy Enough to Clean Out the Grooves.

Dr. C. C. Miller says, page 521, July 1, that the wedge and saw-kerfs in brood-frames are fine the first time when used, but the second time they are no good. Last spring I had about 50 old frames that I had cut the combs out of on account of foul brood. I just boiled them in lye and water; and as fast as I took them out of the water

I took out the wedge and took a little stick and cleaned out the saw-kerfs. When I was ready to put in foundation they worked as nicely as when new.

E. G. Baldwin, page 524, July 1, says that he would like to have others report who have tried the honey method of introducing. I have tried it on five queens, and have not lost any. It works finely. One colony I tried it on had been queenless so long that they had nothing but a little drone brood that was ready to hatch.

Lake Cicott, Ind.

T. C. Johnson.

#### They Didn't Need Any Queen.

I have a swarm that filled every frame with brood, and produced a rousing colony and filled one super of honey. When I took the honey off I examined the brood-chamber. They had no brood. They had been queenless for a month. They started no queen-cells and have no laying workers, and have filled combs with honey and bee-bread. There is no place for a queen to lay. Now, will they accept a queen? I gave them a frame of young brood and punched a hole in it to provide a place to start cells, but they refused to do so.

Rardin, Ill., July 19.

W. F. Shafer.

[It is a little unusual for a colony to produce so much honey when the bees have no queen. They gather pollen and some honey, but it is not common that they produce as much as a super of surplus honey, as you say.

We would suggest that you have a comb of young unsealed brood and see whether the bees will start queen-cells. If they will, then it will be all right to destroy the cells started and introduce a queen in the regular way. The fact that the bees refused to start cells from the comb of brood you gave them rather indicates that they would not accept the queen, altho we cannot be sure.—Ed.]

#### Honey at the Missouri State Fair.

We had the best exhibits last year of any previous year. We shall have more space this year for a finer and larger exhibit than ever. I have induced the fair board to increase their premiums, and shall try to get them to increase more in the future. I make an exhibit of both comb and extracted honey, also bees.

R. G. Robertson,

Marshall, Mo., July 22.

[See complete premium list on page 824.—Ed.]

#### Why Those Workers were Dwarfed.

I have just noticed the reference, p. 616, July 15, to a freak worker bee. This is no freak to me, for it is very usual where there is European foul brood. The dwarfed workers are due to climatic conditions and lack of stores for the nurse bees to feed them properly during the first few days of their larval state. This lack of attention of the nurse bees causes the larva to be starved.

Chico, Cal.

S. J. Morrison.

A. I. Root

## OUR HOMES

Editor

My son, let thy heart keep my commandments; for length of days, and long life, and peace, shall they add to thee.—Prov. 3:1, 2.

Know ye not that your body is the temple of the Holy Ghost which is in you?—I. Cor. 6:19.

He paweth in the valley, he rejoiceth in his strength.—JOB 39:19, 21.

Some time ago I told you about the enjoyment I was getting from my little second-hand electric automobile. It was called the Stanhope when it was brought out years ago; but when it was discovered that gasoline, especially when the price was away down, was so much cheaper than the electric current, the electric gradually fell into disuse except by the very wealthy. Another thing, our friend Ford put a cheap machine on the market that not only rivals the electric, but rivals a horse and buggy. Over a million of them are now blessing the people of the world. Well, when I bought this little electric the batteries were about used up and needed renewing; and it cost nearly a hundred dollars to have the whole outfit made good. As soon as I got it my old craze for electricity revived, and I commenced studying storage batteries, reading everything I could find on the subject, consulting the manufacturers of electric vehicles, and even going so far as to employ an expert to pull the whole thing to pieces and explain everything to me. Altho it took him two or three days, I stood by him almost every minute. I questioned a good deal about how many miles one could get on a fair road with one charge of the battery. By the way, after one has used up the charge it takes ten or twelve hours to get a full charge again. Well, the makers of the machine informed me that if I got 25 miles out of that rig on fair roads I could consider myself lucky. They said the majority of them on the streets of Cleveland usually went below that. You see I was anxious to know how long a trip I could make to surrounding towns or visiting beekeepers and other friends.

There are many curious things about storage batteries, and, like the poultry business, beekeeping, and almost everything else, the one who *succeeds* is the one who gives the work the most intense and intelligent thought and study. For instance, if you wish to preserve the life of your batteries, you should run them clear down; then when you store them you should store them clear up full. When you have got them stored clear up full on full voltage current, you want to cut the current down a half or less and make it run up again.

Furthermore, when your batteries get exhausted like a tired horse in climbing a long steep hill, you must let them rest. When a charge is needed again, and you are a mile or more from home, you can "get there" by giving the battery frequent rests. On one occasion I found myself half a mile from home, and the machine would not go another inch, even when I was out by its side and led it as one would lead a horse. As I was in a great hurry I left the machine by the side of the road and went home on foot. Going back a couple of hours later, it went home full speed like a young colt. It simply needed *resting*. Well, shortly after the cells had been renewed I got 26 and then 27 miles; then as I learned the different tricks about it I got 30 miles, then 35; and I cannot tell you how intensely I enjoyed the fun of seeing my machine day by day break its record. Where hills are very steep I get out and push the machine to the top of the hill, or carry along a newspaper, and read, when the battery gets tired. I soon found out that muddy roads or a big hill is a bugbear, and I planned to go around them and look out about getting on clay roads during a storm.

In order to get the best results—that is, the most miles, I find it important to make the vehicle as light as possible by removing every article not absolutely required. Leaving off the heavy laprobe that is required only in cold weather made quite a difference. I also omitted my overcoat, and this helped, and walking uphill as I told you. I think that in a former issue I told you about making a trip to Elyria, and afterward getting miles enough to make *fully 40 miles*; and I can hardly tell you the enjoyment and enthusiasm that I experienced in making the last few miles, getting it clear up to 40.

As the batteries grow older their strength is reduced. It was two years ago that I succeeded in getting 40 miles. Just now about 25 miles is the best I can do. Since I have had a Ford car for long distances, the little electric has been used for only short distances about town, or say four or five miles out of town. Our youngest daughter, Mrs. Boyden, has been appointed "deaconess" in our church, and she is expected to do a great deal of visiting. Well, this little electric hits the business to a dot. You can start it easier than you can start a horse. You can stop anywhere—no cranking, nor anything like it. In fact, if you want to move ahead only ten feet you can



just touch the lever and go the ten feet. It just now occurs to me that I omitted one other trick, and it is something that will apply to gasoline machines as well. When you have learned by practice how far the machine will go by its own momentum after you have cut off the current or gasoline you will make quite a saving by making it stop of itself at about the right point, without using the brake. The same thing applies to turning corners. When you come to a place where you are about to turn, cut off the current or the gasoline, and the machine will turn the corner by its own momentum. The differential machinery that is needed in all classes of vehicles to enable us to turn corners is an expensive apparatus. When it gets out of repair it is hard to get at, and an expensive job to make good. But if you stop the current or the gasoline so the power that is pushing is cut off when you turn corners this complicated machinery is relieved—there is no wear and tear on it. If you consult the daily papers you will find again and again where machines “turn turtle” and kill one or more of the occupants, besides maiming for life several others, all just because the driver turned a corner at too high a speed. Had he cut off the driving power before he reached the corner this could not have happened.

Perhaps you begin to wonder by this time what our text has to do with running automobiles. Well, I am just getting ready, friends, to talk about something besides automobiles. I have already mentioned, page 558, July 1, what the insurance doctor told me about so living that I shall be not only alive, but in good repair, as long as possible. The experience I had a few weeks ago suggested to me that I was, in a good many respects, very much like that little second-hand electric Stanhope with its storage battery and ingenious machinery to store up power with which to run. I succeeded in making the storage battery accomplish almost twice what it would do without that careful management and study. The machine and the batteries made not only 30 miles but clear up to 40 miles. My body and brain have passed the three-score-and-ten landmark, and the question begins to arise, “How much *more* is it going to make?” You know I have written several times about my forgetfulness—forgetting to take my mail to the postoffice down in my Florida home, etc. Well, I told the good doctor about my forgetting. He laughed as he said something like this:

“Mr. Root, you should consider that your memory is a part of the machine, and it is *wearing out*. You must rest it. You must

not drive it too hard, and you must not expect too much of it. From what you say, I think it is a wonder that you *do* remember things in your past busy life as well as you do.”

Just a word right here in regard to helping the memory. Like everybody else (or at least I suppose so) I have places for my separate tools—hammer, wrench, screwdriver, coldchisels, etc. Now, I have lately decided that I had better not leave my things in *different* places. For instance, just this morning I wanted my little cultivator wrench. I had used it only an hour before, but it was not in its accustomed place, and I spent quite a little time looking for it. Finally I sat down and said, “Why, what *could* I have done with that wrench that I used just a little time ago?”

After a little brown study I said:

“Oh, yes! I decided that the best place for it would be to hang it on a nail where it would be in plain sight where I was cultivating.”

Then I looked up at the nail, and there it was, sure enough. I had decided hanging it on a nail would be a better place than the one where I had been accustomed to keep it; but the fact of making that decision and of hanging up the wrench had entirely gone from me, and so I concluded that for the rest of my life I had better be careful about putting things in a *new* place. I told you I had discovered the tired-out batteries would work again with considerable vim if they were “rested” for an hour or two. Well, it is just so with this old body of mine. After I feel that I cannot go any further here in the office, read the letters, or go out into the garden to run the cultivator, a little sleep will fix me all right again. The younger friends all around me take their sleep just once in 24 hours. I do not know at what time they go to bed; but a good many times I *do* find them asleep after the factory whistle has blown in the morning. (I don’t know what time they went to bed). Babies, you know, take short naps, and I begin to think that old people could as well do the same thing probably. I like to be about early, say shortly after daybreak. I delight in seeing the sun rise. Before it is up very far I want my breakfast. This good doctor said my heart would not hold out for long sieges just as it did when I was younger; and he said the heart, in order to do this work, needs a good supply of oxygen. A dusty atmosphere or a confined atmosphere, he said, is a clog on the heart. He asked me if I ever panted for breath. I told him I often did when cranking my automobile. He said the exercise was all right, and just

what I needed if it were not too severe, and that better air, and the pure air of the country, is very much better for one who is anxious to retain his powers of mind and body as long as possible.\*

In regard to food, nature will indicate what is best for you if you will enter into her way. By the way, the Cleveland *Flxin Dealer* is now printing some talks on health every day from a very competent and able physician. I greatly value these health talks, and I rejoice to hear this good doctor say again and again that stimulants and intoxicants are all to be avoided. He answers more or less in every issue of the daily, and every little while some one asks him if a little beer or whisky would not be a help for this, that, and the other. But his reply is *no* every time. May God be praised that the physicians of the present day are getting to be a unit in regard to alcohol as a medicine.

By the way, our good friend R. F. Holtermann, of Brantford, Canada, made us a call yesterday, July 5. We were talking about preserving health clear up into old age. He said something like this: "Some good authority has said that a man should exercise enough to take a good sweat twice a day;" and then he added, "As a matter of course we do not want to overdo the thing." He said his test was if, when he got up the next morning, he felt bright and well as a result of the exercise of the day before, that exercise did not do him any harm. That has been my experience. Many times lately when I feared the use of the cultivator might show itself, next day, to my surprise, I would get up feeling unusually well, and all ready for some more of the same kind of medicine.

Now, friends, in summing up is it not very likely that we can have greater "length of days, long life, and peace," as we have it in our text, if we study these bodies of ours exactly as I studied that electric automobile which I made do double the work they told me at the factory where it was made I would be likely to get out of it? But it came about because it was my delight to study it and master its mechanism from beginning to end. I went over books on electricity, and questioned experts, and studied God's laws in regard to the wonderful current which does our bidding in so many ways.

Our text also intimates that "length of days and long life" are the result of keep-

ing God's commandments. A study of the Bible will, I am sure, be a great help to long life. Then we can make it a lifelong earnest study to understand better the mechanism of these bodies. We can find out by careful intelligent experiment what helps and what hurts. When I discovered that headache powders gave instant relief, not only to headache but to toothache and earache, I was delighted; but when I found out shortly after that those same powders interrupted the digestion and "made mischief" with the machinery in other ways, I decided "no more dope for this child." It must have been toward thirty years ago that toward night I felt a queer breaking-down which I could not understand. I remember one evening just before our teachers' meeting I said to myself, "What in the world is the matter?" and I managed to get along in a dazed sort of way until bedtime. In the morning I was all right, and pretty soon I discovered that a *little sleep*, say twenty or thirty minutes, was a cure for this giving-out, if I may so express myself, when I have been doing an unusual lot of brain-work. My brain or nerves were in just the fix that the storage battery was. A halt was necessary in order for the various chemicals to assemble, as it were. Now, I do not know just exactly *how* sleep enables nature to readjust and make good certain things in order to make up for those that are worn out. After careful cutting and trying I discovered that physical exercise and taking a sweat are almost as necessary as sleep; and by carefully noting the effect of different kinds of food I was able to decide what foods are best for me, or the quantity of food that would enable me to do the most work. Upton Sinclair, as you remember, discovered he could get great benefit by fasting; and thousands besides myself have found out that over-eating is one of the great sources of mischief. Do not have too many different kinds of food at a meal; and beware of tempting dishes that are invented, it sometimes seems to me, for almost the sole purpose of persuading us to eat more than we need. Let us remember that these wonderful bodies of ours that hold out sometimes close to a hundred years are or should be "the temple of the Holy Ghost;" and let us remember the promise that if we study and keep God's commandments we are likely to have "length of days and long life." And, finally, if you will excuse the abruptness of my third and last text, even old men like myself, if we live right, may feel like that beautiful God-given domestic animal which "paweth in the valley and rejoiceth in his strength."

I spoke about the importance of storing

\* I have just discovered that riding in an automobile, say early in the morning, against a good stiff breeze, tones and braces me up a thousand times better than any dope or stimulant ever invented. Just take in long breaths, as much as you can hold, and get an extra supply of God-given oxygen.



the storage battery clear up full and then letting it run clear down. It is better for the battery, and it will give longer service, than if a little more current should be added, especially when it is only part way run down. Now, I think this will also apply to these bodies of ours. At least for myself it is better to do a thoro day's work—of course not overdoing, but to avoid sitting around in a lazy way. After doing a fair day's work with both mind and body, I am then ready for a good sleep, and then ready for another day's work. If my regular hours of sleep are broken on it impairs the machine. This comes right in line with the injunction to "wear out, instead of rust out." If possible, find some kind of work that you enjoy—better still, some that you *thoroly* enjoy. But I would recommend keeping busy, even if you do not always enjoy it. I would especially urge all old people to study how to help themselves, and take care of themselves as much as possible, and avoid *in every possible way* being a burden on the younger ones. I am thoroughly convinced that "length of days, and long life and peace," depend very much on what I have been saying.

#### THE AMERICAN CIVIC REFORM UNION.

The superintendent of the above institution writes me as follows:

*My dear Mr. Root:*—What do you think of my brand-new lecture circular? I know you can say "amen" to "Why I am a Reformer."  
Cleveland, O., Aug. 8. A. S. GREGG.

The first page of the circular referred to reads as follows:

#### WHY I AM A REFORMER.

Because innocent and helpless little children cry for food and clothing while brewers, saloon-keepers, and corrupt politicians wax rich on money stolen from the breadwinners.

Because of the broken-hearted wives, mothers, sisters, and sweethearts whose loved ones have been robbed of strength, health, and all that makes a man noble.

Because Mr. Indifferent Voter is so busy making a living or striving to get rich that he doesn't care a hang who is elected to office unless the election happens to hit his pocketbook.

Because evil men in high places corrupt the people, and control government for private gain.

Because ignorant goodness and a "pork-barrel" state of mind breed a "pork-barrel congress."

Because fiends in human form "sit in the lurking-places of the villages," and often in the palaces of the city, and plot destruction of innocent young girls.

Because our jails, asylums, and poorhouses are overflowing with the uncanny victims of vice, drink, and degeneracy.

Because many men are so rotten with the results of vice and drink that they could not defend the country in case of attack by a foreign foe.

Because I want to help destroy the works of the Devil and establish justice, purity, and sobriety on earth.

*My program.*—A relentless attack on evil conditions by means of lectures, sermons, books, newspaper articles, legislation, and investigations; and the development of a righteous public opinion that will elect honest and capable men to public office and keep them there.—*Rev. Albert Sidney Gregg*, Lecturer and Promoter of Civic Reforms, Superintendent of the American Civic Reform Union, 501 Caxton Building, Cleveland, O.

If I am correct, friend Gregg stands ready to respond and take charge of any case of white slavery, cruelty to children, or anything along that line. Address him as above and he will have the matter looked into. And I want to say to my good friend Gregg that I not only give a hearty "amen," but, as you see, I have got it in print also.

#### SOME OF THE ADVANTAGES OF FLORIDA.

We take pleasure in clipping from an article in the *Florida Grower* the following, written by W. A. McRae, Commissioner of Agriculture. Our readers can rest assured the statements, coming from such a source, are unbiased:

The centers of continents are subjected to greater intensity of storms and variations of heat and cold than along sea-coasts. Kansas is the center of more uncertainty in weather than any other part of the Union. More dangerous storms occur in the central section of the Mississippi Valley than elsewhere in our country.

Florida is freer from dangerous winds than any other part of the South Atlantic or Gulf regions. Severe storm centers originating in the West Indies or Caribbean Sea pass across the Gulf and strike as a rule the coast adjacent to the mouth of the Mississippi and pass up that valley to the Ohio Valley and Lake region, and thence to the east, or else subside on the way. Florida has heavy rainfalls; but most of its rivers are tidal and seldom overflow their banks regardless of the quantity of water flowing into them from downpour.

Florida is more fortunate in having a purer atmosphere than any other of the States, it being duly swept by mild and constant winds from the seas on each side—modifying the heat of summer and the cold of winter—with air free from impurities, which is not possible in the interior region of the country, where it is liable to contamination from the land. Florida, too, is fortunate in having a larger supply of good fresh water in surface lakes and rivers and underground than any other State, not to speak of its unrivaled sea-coast—the longest in the Union.

Florida, therefore, has an ample supply of a remedy that's good for what ails you, no matter what it is, and it costs nothing. It is good externally and internally. Applied externally, with a bit of soap, it has magic effect on the skin—a refreshing experience always—and yet few understand that equal magic comes by its frequent internal use. We eat when hungry, and most people drink when thirsty. But thirst does not come until the tissues are waiting, and a United States public-health bulletin recently announced: "Taking in just enough water to satisfy thirst means living on a stagnant level with never a flood to wash out the old and stir the new." About 70 per cent of the human body is water. Have a drink; and the more you drink, the better. *Water's about all you can get now in most Florida towns, and hasten the day when it will apply to every nook and corner of the State.* Water is the world's one best drink. Have another!

And there's our good air to breathe. To breathe well he *po*ne keep well. To live longer and better, the doctors say, make it a habit to take breathing exercises. Experts declare that the average man ordinarily uses about one-tenth of his lung space. Is it any wonder that diseases of the throat and lungs are so easily contracted? Florida air is safe to breathe. It comes in clean and pure from the seas.

It is estimated that the atmosphere—the vital part extending not more than six miles from the surface—carries annually from the sea to the land to flow back again to the sea no less than 130 millions of tons of water. The average annual rainfall of the United States is about 33 inches, while that of Florida is 53 inches.

Florida can in all truthfulness boast of its good

air, water, and healthfulness. Air and water are the prime essentials of life; and with plenty of the best of both, there is no reason why our state should not become one of the greatest in the Union—if there is any advantage in having the essentials of life.

I want to give a hearty amen to the sentence above which I have taken the liberty to put in italics. When we get good men into high offices that are not afraid to come out before the world and make such statements as that, we are certainly making progress toward the coming of God's kingdom.

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## HIGH-PRESSURE GARDENING

### THE DUST MULCH IN TIME OF DROUTH.

On page 557, GLEANINGS for July 1, I spoke of the Barker cultivator for making a dust mulch, etc. Well, I so much enjoyed running the Barker cultivator that Mrs. Root remonstrated. She said I was cultivating the garden over and over, when there was not a weed to be seen. Well, it is true I did run the little cultivator when it seemed there was no particular need of it. One reason was that I was getting so much benefit from having a good sweat every forenoon or afternoon. By the way, toward seventy years ago I once heard my grandfather, Jesse Hart, say that he aimed to keep his garden in such condition that no one could find in it a tobacco-boxful of weeds by going all over the enclosure inside of the picket fence. I suppose this was at a time when my grandfather was almost too old to do much but make garden. Well, when I got my garden in such fine condition I thought about the tobacco-box story; and altho I do not have any "tobacco-box," and never had one, I think my garden must have been pretty nearly equal to my grandfather's. I distinctly remember the luscious melons (they did not have "cantaloups" in those days) that he used to get out of that garden and divide up among his children. Well, now, for the point of this garden story.

When the great drouth came on about the first of July there was a soft dust mulch, perhaps an inch deep or more, all thru my garden stuff; and altho we had five weeks of it right here in Medina without anything to call a summer shower, our garden scarcely seemed to mind it. We could not use the sprinkling system I have mentioned, because a flood destroyed the dam of our Medina waterworks, and the water board had cautioned everybody in our town to be careful about wasting water.

This dust mulch stood for four or five weeks without a sufficient sprinkle of rain to form any crust. Great cracks opened up in many places in our clay soil in consequence of the drouth; but our corn, beans, and everything that got a good start before the drouth did not seem to suffer at all. Some things that were planted late that had not got their roots far down were hurt by the drouth. I have before said something about preparing a dust mulch to overcome or offset the results of a drouth; but I never realized before what is possible in this direction. You can easily test it by experiment. Clay ground will never get dry and hard when there is a mulch of soft fine earth on the surface. I suppose other tools will form this dust mulch the same as the Barker cultivator; but I never saw any implement that would pulverize a clay soil and spread it over the surface so evenly as does the Barker cultivator.

### MULCHING THE ORCHARD WITH SWEET CLOVER.

For years I have witnessed the contrast between a block of trees at our Ohio Experiment Station which were mulched, and another block of trees adjoining that had the best of cultivation. The mulched trees were far ahead; but I do not know that they ever tried mulching with sweet clover. So far as I know their mulch consisted of grass and weeds that were cut between the trees. The mulch extended out as far as the limbs reached, and it was kept heavy enough to keep down all weeds. The following from the *Ohio Farmer*, it occurs to me, is an excellent suggestion. One who has tried plowing and cultivating an orchard, and has also tried mulching, can realize what *cultivation* costs.

#### SWEET CLOVER IN THE ORCHARD.

I was interested in the attitude that Prof. W. F. Massey took in the April 29th issue of *The Ohio*



Farmer in regard to growing sweet clover in an orchard. I have made a careful study of this legume, and in my opinion no other cover crop can compare with it. Last spring I seeded an acre of my orchard to sweet clover which I mowed as soon as the crowns for this year's growth had formed, which was about Sept. 15.

The growth from this acre was sufficient to mulch every tree in the acre one foot deep and five feet in diameter. This year I will get two or three cuttings, each of which will be equal to the one made last fall. If this be used for mulch, which in course of time will decay, forming humus and in the mean time holding the moisture, I cannot see how it will rob the trees of moisture.

There is no doubt that the sweet clover will draw somewhat on the soil moisture, but compare it to the average grass that we find growing in orchards, which is usually a mixture of timothy and bluegrass. It has to rain a day and a night to soak this leathery covering, while with sweet clover the water finds easy access into the soil.

Furthermore, the large roots of the clover in decaying and opening not only the surface soil but also the subsoil, greatly increase the power of the soil to assimilate and hold large quantities of moisture. I will admit that to plow under a crop of crimson clover each year is good; but other things must be considered. It is a whole lot easier to say plow than to go into an orchard and do it. It is impossible to plow an orchard without injuring some trees, either with the plow or the horses' barking the trees. In the next place you cannot avoid ridges and dead furrows which, if your orchard is planted on a hill, will result in disastrous washes and gutters.

Here are the advantages of growing sweet clover in the orchard: 1. It makes sufficient growth to mulch the trees heavily, thereby retaining moisture. 2. It is a legume, therefore enriches the soil instead

of making it poorer. 3. By allowing the last crop to seed, it never requires re-seeding. 4. By not cutting the last crop until it has ripened its seed, then in raking this up and mulching with it, all danger of fire running over the orchard and destroying it is entirely overcome, which is one of the greatest if not the greatest disadvantage of the mulch system.—FRED SATTLER, Tuscarawas Co., O.

#### SACHALINE, "EUREKA CLOVER."

Some eight or ten years ago, I am sorry to say, our journal gave quite a favorable report of sachaline as a new forage plant. In 1908 I gave notice that it had never made a growth to amount to much unless planted in exceedingly rich ground. I regretted that I had ever boomed the stuff; and the worst part of it was that no kind of stock seemed to care enough for it to eat it. We have just received the following:

##### EUREKA CLOVER.

Under the name "Eureka" clover there is now being advertised a forage plant for which enormous yields of green fodder are asserted. The plant in question is sachaline (*Polygonum sachalinense*), introduced into the United States in 1883, and much exploited in 1893 and for a few years thereafter.

Washington, D. C.

It seems that the business of booming some old and well-known plant under a new name is not altogether done away with.

Together with the above clipping came a couple of pages regarding sachaline, first and last.

## TEMPERANCE

"THOU CHILD OF THE DEVIL; THOU ENEMY OF ALL RIGHTEOUSNESS; WILT THOU NOT CEASE TO PERVERT THE RIGHT WAYS OF THE LORD?"

The above sounds a little rough, does it not, dear friends? But if Paul were alive and on earth now I believe he would say just that thing to the liquor people and their business. I was reminded of the above by the following, which I clip from the *American Issue*:

BOYS AND GIRLS OF MORE VALUE THAN NATION'S MATERIAL RESOURCES.

The Van Wert (Ohio) *Republican* hits the nail on the head, from an economic viewpoint, in discussing the liquor question. We quote from that paper:

"Life-insurance experts figure that each young man and woman of good habits and sound physique is an asset to the nation, as a producer or conservator of wealth, to the extent of \$8000. There are in the United States 50,000,000 children and young people under 25 years of age. At \$8000 apiece they are an asset of \$400,000,000,000. In mere dollars and cents the youth of our nation are worth more than our coal, our iron, our silver, our gold; more than the cattle on a thousand hills; more than grain from a million fields. And the legalized liquor-traffic is the ruthless destroyer of youth. It begins the work of destruction before birth; handicaps boys

and girls physically and morally, and renders tens of thousands not only unable to produce or conserve their quota of \$8000, but makes of them dependents and undesirable, an economic loss to the nation and a menace to its stability.

#### "BOOZE" SHOPS IN THE DISTRICT OF COLUMBIA.

Have we not as a people and as a nation progressed almost far enough toward God's kingdom to declare most vehemently that it is a burning shame and a disgrace to our nation that these hotbeds of all vice and iniquity should longer remain right close to the capitol of our great nation? See the following, which I clip from the *American Issue*:

It is thought that the District of Columbia dry bill will pass the Senate at the short session, if not during this summer. Senator Vardaman, of Mississippi, in his speech in the Senate the other day said:

"If the question of saloons or no saloons for the District of Columbia should ever be put squarely to the American Senate, I have no doubt about the saloon hearing its death-knell in so far as action in this body is concerned. The American people demand it, and the interests of humanity call for such legislation. The open saloon is an evil without a mitigating incident, and I submit that the great capital

of the greatest nation on earth should not be marred by such social cancers and festering sores. It is not in keeping with the highest order of Christian civilization.

#### IT PAYS TO BE DRY AND "DECENT."

When I was fourteen years old I attended high school in Wellsville, Ohio, one winter. It was during this winter that I made my first experiments in electricity, and at the same time I succeeded in exploding a mixture of air and gas by means of an electric spark. Little did I think at that time my cheap, rude, boyish apparatus was going to be the forerunner of the automobile that is now, I might almost say, turning the world upside down. For the above reason I was interested in the clipping below, which I take from the *American Issue*:

NO SALOONS, LESS CRIME; JAILER MORGAN TELLS OF CHANGE IN CHARLESTON, W. VA.; IT PAYS TO BE DRY; IF YOU DOUBT IT, ASK THE CITY OF WELLSVILLE.

There is little wonder that Lisbon, Columbiana Co., voted dry recently. The voters had only to look across the county to the city of Wellsville to see the benefits of a saloonless town. In fact, they had the benefits right at home, but quite often do not appreciate them as much as when seen from a distance.

Wellsville, a dry city of 8000 population, has nearly \$60,000 on deposit in the Postal Savings Bank. Besides this amount, she has \$30,000 of postal-savings deposits invested in United States bonds.

In the same county is the wet city of East Liverpool with a population over three times as large as that of dry Wellsville, and yet the deposits in her Postal Savings Bank amount to only \$16,000.

Furthermore, in two years in dry Wellsville the city has reduced the bonded indebtedness by \$50,000, and this year will pay off \$30,000 more of its indebtedness. The past two years dry Wellsville has spent \$140,000 in building new churches; \$95,000 has been spent on a new high-school building, and \$15,000 on a public-library building.

The above tells why in a pecuniary sense it pays to be dry; and the next clipping from the same paper shows how it pays to be dry and *decent*.

BAD BUSINESS; INSURANCE COMPANY DOES NOT WANT SALOONKEEPERS FOR PATRONS.

An agent of one of the big New York life-insurance companies took the application of a saloon-keeper for an endowment policy. The company rejected the application. The agent wrote to the home office and registered a kick because the application was not accepted. In reply the company wrote the agent in part as follows:

"So far as we are concerned we do not believe risks of this class will contribute to a satisfactory mortality in the first place, and in the second place we do not care to write our business among that class in the community. We think it would do the company harm rather than good, even if it got a few hundred thousand dollars of seemingly good business on the endowment plan every year, if the holders of these policies were saloonkeepers. We do not want the name of being a saloonkeepers' company and of taking the grade of risks which are refused by the leading and conservatively managed companies of the country.

"Life-insurance companies are engaged in encouraging thrift, protecting homes, and in promoting the welfare of the individual, the community, and the state. Saloonkeepers—all of them—are engaged in discouraging thrift, destroying homes, and in injuring the individual, the community, and the state. There is nothing in common between us, and we do not even care for business relations with them."

I am glad to know that now even insurance companies do not care to take money that is gotten by selling "booze."

#### THE ANTI-CIGARETTE LEAGUE OF AMERICA.

This is located at 1119 Woman's Temple, Chicago. There are something like forty or fifty different officers, including an advisory council. This is headed by P. P. Claxton, U. S. Commissioner of Education, as Honorary President. By the way, is it not remarkably appropriate and fitting that the *Commissioner of Education for the United States* should be president of this much-needed organization? In the advisory council we notice the names of Judge Ben B. Lindsey, of Colorado; Thomas A. Edison, Wilbur F. Crafts, J. H. Kellogg, M. D.; Ira Landrith, of Tennessee; Daniel A. Poling, of Ohio, and a host of good men and women of our nation. Last, but not least, as the *superintendent and founder*, is the name of Lucy Page Gaston—just a little woman, but a "live wire," and no mistake. By the way, among the other things that I have to thank God for is the fact that I have so many good strong friends who are standing away up in the crusade for the betterment of humanity. I am going to let you get a glimpse of a letter just received from Miss Gaston:

Dear Mr. Root:—I am very glad indeed to know that you keep up your fight on tobacco. The story of your practical work ought to be passed along, and I may find a way to publish it. We have such an abundance of good material, only waiting the financial ability to get it to the world.

Hoping that we may some time have the opportunity of meeting again, I am

Yours for clean living,

Chicago, Ill., Aug. 11. LUCY PAGE GASTON.

P. S.—I wish you were 20 years younger. My dear mother is in her 84th year, and is as bright as ever.

L. P. G.

When I came to the postscript I had to have a big laugh; and I am still wondering just *why* she wishes I were "twenty years younger." Please notice just above her signature, "Yours for clean living." Well, now, this clean living is the explanation for her mother being as bright as ever, even up to her 84th year; and I think, also, it is the "clean living" that has enabled me to feel so bright and well this 15th day of August, 1916.



## Why Not Declare War?

against weak colonies, old queens, and diseases by buying and requeening with my young, vigorous, three-banded Italians. They are bred for honey and gentleness. 50 CENTS each; \$45.00 per 100. This is a first-class queen at a cheap price. Guaranteed to be as good as money can buy; to give perfect satisfaction, and reach you in first-class condition.

N. Forehand . . Fort Deposit, Ala.

## ITALIAN QUEENS

Untested remainder of the season 75 cts. each; \$4.25 for six; \$8.00 for 12. Tested, \$1.00 each in any quantity. Satisfaction in all cases or money refunded. Been breeding queens for sale for 25 years, and we know how.

L. H. Robey, Worthington, W. Va.

### Please Notice Change of Prices of Leininger's Strain of Italians

We will sell untested Italian queens at 75 cts. each; six, \$4.50; tested, one year old, at 80 cts. each; six, \$4.80; tested, young, \$1.25; six, \$6.50. Breeders, \$10 each. We guarantee that all queens will reach you in good condition, to be purely mated, and give satisfaction.

Fred S. Leininger & Son . . Delphos, Ohio

## Italian Queens---Northern Bred

make extra hardy queens for Canada and Northern States. I reduce price on untested August and September, 75 cts. each; \$8.00 per dozen. Select tested, \$1.50. Write for prices on larger numbers and get my price list in full. Plans "How to Introduce Queens," and "Increase," 25 cts.

E. E. MOTT, . . . Glenwood, Michigan



## Prices Reduced for . . . Rest of Season

For resisting foul brood no bee can be found that will excel ours. Requeen now while you can get them cheap.

### Three-banded and Golden Italian

Untested queens	. . .	75c
Tested,	. . . . .	\$1.00
Selected,	. . . . .	2.00

W. J. Littlefield, Little Rock, Arkansas  
Box 582

## QUEENS AT 50c

These queens are guaranteed to be as good as money can buy. They are bred by the same and with the care as the high-priced ones. They are bred from imported mothers, the best in the world, and will produce bees that are the best for honey-gathering, gentleness, and not inclined to swarm.

	1	6	12	25	50	100
Warranted . . . . .	.50	3.00	6.00	11.75	22.50	43.75
Select untested . . .	.65	3.50	6.75	12.50		
Tested . . . . .	1.00	5.50	10.00			
Select tested . . . .	1.50	8.50	16.00			

We guarantee that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction. All orders filled at once.

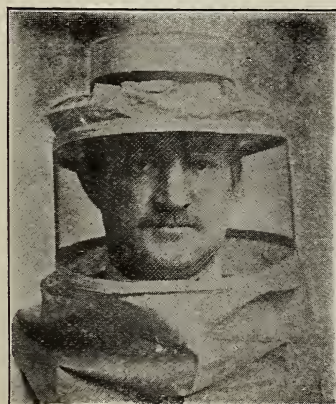
L. L. FOREHAND, Fort Deposit, Ala.

Established 1885



A great honey crop is in sight for 1916. If you are needing hives, sections, foundation, and other bee supplies, send at once for our large catalog, full of information. We carry a good assortment of supplies for prompt shipment. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co., High Hill, Mo.  
Montgomery County



## By All Means Buy a Good Veil

Muth's Ideal Bee-veil, postpaid 75c;  
with other goods, 70c.

OLD COMB AND CAPPINGS rendered into wax with our hydraulic wax-press. Perfect work. We buy your wax at highest market price. Write us.

THE FRED W. MUTH CO.  
204 Walnut Street Cincinnati, Ohio

**PROTECTION BY SPRAYING MYERS WAY OR**

**← WHICH? →**

**TREE DISEASE AND POOR FRUIT OR**

It will soon be time for Fall Spraying. Get your orchards and fruit trees in prime condition and they will require but little attention next spring. Destroy scale and similar diseases by spraying MYERS WAY, and have healthy trees that will produce high grade fruit next season. Get acquainted with

**MYERS**

SPRAY PUMPS & ACCESSORIES by asking for a copy of our 64 page Catalog showing complete line of Myers Easy Operating Patented Cog Gear Bucket and Barrel Spray Pumps for Hand use and Power Equipments with Automatic Pressure Controller for gasoline engine--All styles, large or small, are dependable, proven and guaranteed. Write today.

**F.E. MYERS & BRO**  
NO. 351 ORANGE ST.  
ASHLAND, OHIO.

HANDY OUTFIT FOR GENERAL USE

**WINTER STAGE SAN JOSE SCALE**



Get  
This  
Stove  
Book

**FREE**

—Wholesale  
Prices—New Styles

MAIL postal today—save money and get best stove or range that's made. Cash or easy payments—30 days' trial—360 days' approval test—\$100,000 Guarantee. We pay freight, ship within 24 hours. Ask for catalog No. 416

**KALAMAZOO STOVE CO.**  
Mfrs. Kalamazoo, Mich.

**"A Kalamazoo"**  
Trade Mark Registered  
Direct to You



**The "BEST" LIGHT**

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

**THE BEST LIGHT CO.**  
306 E. 5th St., Canton, O.



## Whys and Wherefores of Fall Spraying

is the title of a little booklet, giving seven reasons, official and non-official, why it is the best time to spray. This booklet will be sent out by the B. G. Pratt Co., 50 Church St., New York, manufacturers of the well-known "SCALECIDE" at a very early date. If you are not on their mailing list, send them a postal today giving the number of your trees and your dealer's name and you will receive a copy free. Address Dept. G.

## HONEY-JARS

No. 25 one-pound screw-cap honey-jars, one gross to a crate, \$4.75; two-dozen cases, \$5.25 gross. We have several styles of jars, cartons, and shipping-cases. Italian bees and queens.

Catalog free.

**I. J. STRINGHAM, 105 PARK PLACE, N. Y.**  
Apiaries: Glen Cove, L. I.

## The Eyes, Ears, and Mouth are Near Together

To see birds, hear their  
music, and taste honey  
are a happy trio.

There is a new and enlarged  
**Bird Department**  
in the  
**Guide to Nature**

Send twenty-five cents for a four-  
months' trial subscription.

Address: ARCADIA, Sound Beach, Conn.

## Queens of MOORE'S STRAIN of Italians

**PRODUCE WORKERS**

That fill the super quick with honey nice and thick. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, 1, \$1; 6, \$5; 12, \$9; 100, \$65. Select untested, 1, \$1.25; 6, \$6; 12, \$11; 100, \$75. Safe arrival and satisfaction guaranteed. I am now filling orders by return mail.

Circular free.  
Queen-breeder

**J. P. MOORE,**  
Route 1, MORGAN, KY.



## Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines; and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

### HONEY AND WAX FOR SALE

A No. 1 clover in 120-lb. cases at 8 cts.  
H. C. LEE, Brooksville, Ky.

FOR SALE.—White-clover comb honey; extracted in 60-lb. cans. HENRY HETTEL, Marine, Ill.

In new 60-lb. cans, clover honey, 8 cts.; buckwheat, 7. G. H. ADAMS, box 184, Schenectady, N. Y.

FOR SALE.—Choice northern Michigan clover honey in new 60-lb. cans.  
A. TIEN, Falmouth, Mich.

FOR SALE.—White-clover extracted honey in 60-lb. cans, two cans to a case.  
ARTHUR NORBERG, Spring Valley, Ill.

Clover honey, extracted, in 60-lb. cans; comb in  $4\frac{1}{4} \times 1\frac{1}{4}$  sections. Write for prices, etc.  
E. L. LANE, Trumansburg, N. Y.

Choice new-crop white-clover extracted honey in new 60-lb. tin cans, the bargain of the season; sample, 10 cts. D. R. TOWNSEND, Northstar, Mich.

FOR SALE.—A1 sweet-clover honey in 60-lb. cans, two cans to a case,  $7\frac{1}{2}$  cts. per lb., f. o. b. cars.  
JOE C. WEAVER, Cochrane, Ala.

Clover honey (1916 crop) of very heavy body—a fancy article. Write for prices and a 5-cent sample.  
M. W. HARRINGTON, Williamsburg, Iowa.

FOR SALE.—Choice New York State clover honey in 60-lb. cans, two in a case, at  $7\frac{1}{2}$  cts. per lb., f. o. b. Delanson, N. Y. FRANK C. ALEXANDER.

FOR SALE.—Clover honey of finest quality in new 60-lb. cans at  $8\frac{1}{2}$  cts. per lb. Also fancy and No. 1 clover comb honey,  $4\frac{1}{4} \times 1\frac{1}{4}$  sections.  
MARTIN CARSMOE, Ruthven, Iowa.

FOR SALE.—Extra-quality white-clover honey,  $8\frac{1}{2}$  cts. by the case of two 60-lb. cans. Ten or more cases, 8 cts. Six-pound can, postpaid, in second zone, \$1.00. EARL RULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—Best quality white-clover extracted honey in new 60-lb. cans, 2 cans per case. State how much you can use, and I will quote you price.  
L. S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—Clover honey (1916 crop), excellent quality, in new 60-lb. cans; also 5-lb. and 10-lb. pails. Sample, 10 cts. May be deducted from first order.  
DODDS' APIARY, Cambridge, N. Y.

FOR SALE.—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case; extracted, 120-lb. cases, 9 cts. per lb.  
W. A. LATSHAW CO., Clarion, Mich.

New clover honey; comb runs from No. 1 to fancy, \$3.50 per case; No. 2, \$3.00 per case of 24 sections, six cases to carrier; extracted clover, 9 cts., two 60-lb. cans to case. H. G. QUIRIN, Bellevue, O.

RASPBERRY HONEY.—Thick, rich, and delicious. Put up for sale in 60-lb. tin cans. Price \$6.00 a can. Sample by mail for 10 cts., which may be applied on any order sent for honey. Write for price on large lots.  
ELMER HUTCHINSON,  
Rt. 2, Lake City, Mich.

FOR SALE.—Beautiful white-clover extracted honey, left upon the hives until after the close of the season before extracting, then put up in new 60-lb. net tin cans. The fact is, we have studied out a system of extracted-honey production whereby exquisite quality is secured at the expense of quantity. Just a little more money will buy this rich, rosy, well-ripened stock than is required to buy "just ordinary" stock. Inclose 10 cts. in stamps for a large sample that costs us 25 cts. to send, and be convinced of the superior quality of this stock. Address THE BEEKEEPERS' REVIEW, Northstar, Mich.

### HONEY AND WAX WANTED

WANTED.—Honey in carlots or less. Send sample.  
O. N. BALDWIN, Baxter, Kan.

WANTED.—Comb, extracted honey, honey-dew, and beeswax. W. A. LATSHAW CO., Clarion, Mich.

WANTED.—Comb and extracted honey, in car lots and less carlots. J. E. HARRIS, Morristown, Tenn.

Beeswax bought and sold. STROHMEYER & ARPE CO., 139 Franklin St., New York.

WANTED.—Best grades of white-clover comb and extracted honey.  
THE THORNILEY BROS. CO., Marietta, O.

BEESSWAX WANTED.—For manufacture into Weed Process Foundation on shares.  
SUPERIOR HONEY CO., Ogden, Utah.

BEEKEEPERS.—We are always in the market for small shipments of comb and extracted honey. Write us. PURITY HONEY CO., Botkins, O.

WANTED.—Comb honey; fancy and No. 1 qualities;  $4\frac{1}{4}$  square by  $1\frac{1}{4}$  sections preferred. Also white extracted honey, carload or less; quality.  
HOFFMAN & HAUCK, Richmond Hill, N. Y.

WANTED.—Comb honey. I can use about 1000 sections by Jan. 1, 1917. The one offering the best goods at lowest price gets my cash order. Give full description in first letter. R. V. STROUT, 325 11th St., S. W., Washington, D. C.

### FOR SALE

Get our new Rubber Stamp and Label Catalog.  
ACME PRINTING CO., Medina, Ohio.

HONEY LABELS.—Most attractive designs. Catalog free. EASTERN LABEL CO., Clintonville, Ct.

SEND TODAY for samples of latest Honey Labels.  
LIBERTY PUB. CO., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—A full line of Root's goods at Root's prices.  
A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—One 2-horse steam-engine in good working order, \$12.00.  
J. W. UTTER, Amity, Orange Co., N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.  
WHITE MFG. CO., Greenville, Tex.

FOR SALE.—Cedar or pine dovetailed hives, also full line of supplies, including Dadant's foundation. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—Medium-brood foundation. 1 to 10 lbs., 52 cts. per lb. Up to 25 lbs., 50 cts. Up to 50 lbs., 48 cts.; 100 lbs., 48 cts., prepaid in La. Root's goods for sale. Beeswax wanted; 25 cts. cash, 26 trade. J. F. ARCHDEKIN, Bordlonville, La.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont., successors to the Chas. E. Hopper Co. Full line of Root's goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and other bee-journals; Prairie State incubators. Get the best. Catalog and price list free.

## PATENTS

PATENTS THAT PAY: \$625,812.00 clients made. Protect your idea. Send data. Advice and two wonderful Guide Books free. Highest reference. E. E. VROOMAN & Co., 834 F., Washington, D. C.

## REAL ESTATE

FOR SALE.—A nice twenty-acre farm with 100 swarms of bees, and large ginseng-beds; also 4800 pounds of extra-nice raspberry-clover honey. L. FRANCISCO, Mosinee, Wis.

YOU CAN DO BETTER ON A SOUTHERN FARM. Send for a year's subscription free to our beautifully illustrated magazine, The Southern Homeseeker, which tells all about good low-priced land and southern opportunities. Write F. H. LABAUME, Agr. Agt. N. & W. Ry., 246 Arcade Bldg., Roanoke, Va.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free. C. L. SEAGRAVES, Industrial Commissioner A. T. & S. F. Ry, 1934 Ry Exchange, Chicago.

WORTH LOOKING OVER by any one wanting to come west to escape the rigors of an eastern winter. Three-room 12x12 California house with furniture; barn, workshop, and tools; over 200 head of poultry, yards, etc.; 70 stands of bees; ramada, honey-house, extractor, tank equipment complete; 3 milch cows and milk route; 2 head of horses; harness, buggy, small wagon, mower rake, etc. The whole as one lot, \$1600 cash. JOSEPH GRAY, Heber, Cal.

FOR SALE.—Modern bungalow and apiary; 5½ acres, partly wooded (including some large and over 200 young basswood-trees); hot-water heat; electric lights; concrete basement, 36x28; \$6000; ½ cash, rest to suit. Will accept honey at 8 cts. Postoffice ¼ mile; 2 railroads; Chicago 18 miles; 349-ft. front on Archer Ave. car line (Lincoln Highway), near Desplaines River and the big canal; adjacent land held at \$1000 per acre; 60 colonies bees; 100 3½-story 10-frame hives; power extractor; gas-engine, tank, etc. Honey-house 28x30. Room for 200 colonies in 40-foot-deep gully. Mrs. MAY BROWN, owner, box 17, Willow Springs, Ill.

## WANTS AND EXCHANGES

WANTED.—A 2-frame latest improved extractor, practically as good as new, and cheap. JOHN M. WARE, Opelousas, La.

WANTED.—To exchange queens for honey, either my own or Dr. Miller's strain. Send sample. CURD WALKER, Jellico, Tenn.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts. C. E. SHRIVER, Boise, Idaho.

## BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. JAY SMITH, 1159 De Wolf St., Vincennes, Ind.

Italian queen-bees, \$1.00 each; tested, \$1.50. J. B. CASE, Port Orange, Fla.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 84 Cortlandt St., New York.

FOR SALE.—No better Italian queens; one, \$1.00; six, \$5.00. J. W. ROMBERGER, St. Joseph, Mo.

FOR SALE.—Italian queens; untested, 50 cts. each. E. A. SIMMONS, Greenville, Ala.

Fine three-banded Italian queens. Circular and price list free. J. L. LEATH, Corinth, Miss.

Golden-all-over queens of quality. Untested, 75 cts.; tested, \$1.50. A. O. HEINZEL, Rt. 3, Lincoln, Ill.

FOR SALE.—Full colonies fine Italian bees at bargain prices. J. Y. TRIGG, Valliant, Okla.

FOR SALE.—36 colonies of bees; hives and bees in good condition. EDW. NESVACIL, Mazomanie, Wis.

FOR SALE.—Fifty colonies of bees at Albright, W. Va., on M. & K. R. R. C. F. WELCH, Albright, W. Va.

FOR SALE.—Untested golden Italian queens, 60 cts.; hybrid queens, 25 cts. each. J. F. MICHAEL, Winchester, Ind.

Bright Italian queens for sale at 50 cts. each. Safe arrival and satisfaction guaranteed. H. K. TURNER, Rt. 4, Greenville, Ala.

Northern-bred Italian queens of the E. E. Mott strain; untested, 75 cts.; guaranteed, 90 cts. Send for free list. EARL W. MOTT, Glenwood, Mich.

FOR SALE.—Two yards of bees in the gallery belt near Valdosta; reason for selling, too many bees. J. W. SHERMAN, Valdosta, Ga.

FOR SALE.—500 colonies of bees; sweet-clover and alfalfa grow in abundance. For particulars address GEM STATE APIARIES, box 67, Rigby, Idaho.

FOR SALE.—300 to 500 colonies in A No. 1 condition in famous Hagerman Valley, where failure is unknown. Address J. E. HANKS, Hagerman, Ida.

FOR SALE.—Ten colonies of yellow-to-tip, extra gentle Italian bees, \$4.00 to \$5.00 a colony. J. F. LOWE, New Brunswick, N. J.

FOR SALE.—600 colonies well-kept bees. All modern equipment. Write WM. CRAVENS, Rt. 7, San Antonio, Tex.

Italian queens bred for their honey-gathering qualities. One, \$1.00; six, \$5.00. EDITH M. PHELPS, Binghamton, N. Y., East End.

FOR SALE.—Three-banded Italian queens, no disease. Tested, \$1.00; untested, 75 cts.; 6 for \$3.75. MISS BIRDIE CULBERSON, Rt. 2, Siler City, N. C.

Vigorous, prolific Italian queens, \$1; 6, \$5. My circular gives best methods of introducing. A. V. SMALL, 2302 Agency Road, St. Joseph, Mo.

ITALIAN QUEENS.—Golden or leather colored; 75 cts. each; \$4.25 for 6; \$8.00 per doz. Tested, \$1.50. NORDLING APIARIES, Button Willow, Kern Co., Cal.

Bright Italian queens at 60 cts. each; \$6.00 per doz.; \$50 per 100. Safe arrival and satisfaction guaranteed. W. W. TALLEY, Rt. 4, Greenville, Ala.

FOR SALE.—As other interests demand my attention I offer 180 strong colonies of bees and complete outfit at a bargain. A. E. AULT, Bradentown, Fla.

WANTED.—Experienced help for two months or more. State in first letter salary expected with board. References requested. JOHN W. CASH, Bogart, Ga.

Extra select untested golden and three-banded Italian queens, 50 cts. each; 6 for \$2.95; 12 for \$5.75. Satisfaction guaranteed. G. H. MERRILL, Pickens, S. C.

FOR SALE.—Golden Italian queens, select tested, \$1.25; tested, \$1.00; untested, 60 cts. each; dozen, \$7.00; select untested, 75 cts.; dozen, \$8.00; no foul brood. D. T. GASTER, Rt. 2, Randleman, N. C.



H. C. Short, queen-breeder, formerly of Winchester, O., is now with W. D. Achord, Fitzpatrick, Ala. We will appreciate the patronage of Mr. Short's customers.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. WM. S. BARNETT, Barnetts, Va.

Golden Italian queens by June 1. Untested queens, 75 cts. each, or \$8.00 per doz.; tested, \$1.25 each or \$12 per doz. Purely mated. Guaranteed. Send for circular. J. I. DANIELSON, Rt. 7, Fairfield, Ia.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Barnetts, Va.

Southwest Virginia five-band Italian queens, the fancy comb-honey strain, gentle to handle. They will please you. Try one. \$1.00 each.

HENRY S. BOHON, Rt. 3, box 212, Roanoke, Va.

FOR SALE.—41 colonies of bees; 23 colonies of them are in 8-frame dovetailed hives; 13 in 9-frame hives; 8 in odd-sized hives. Most of these hives are new, made of cypress, pine, and yellow poplar. Two supers with each brood-chamber. A good bargain. Write us your offer. PURITY HONEY CO., Botkins, C.

FOR SALE.—Good Italian queens, untested, 75 cts.; tested, \$1.00; nuclei, 2 frames, \$3.00; 1-lb. package, \$2.00; 2-lb. package, \$3.00, with untested queen. Will be ready to send out about April 1.

G. W. MOON, 1904 Park Ave., Little Rock, Ark.

HOLLOPETER's strain of hustling three-banded Italian queens by return mail at 75 cts. each; 6 \$4.00; 12, \$8.00; 25, \$15.00. Tested queen free with each order for 12 or more untested queens. Satisfaction given. J. B. HOLLOPETER, Pentz, Pa.

Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. Untested queens, 75 cts. each; \$8.00 per dozen; \$60 per 100. Prompt service and satisfaction guaranteed. L. J. DUNN, box 3383, Rt. 6, San Jose, Cal.

GRAY CAUCASIANS.—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, \$1; select untested, \$1.25; tested, \$1.50; select tested, \$2.00. H. W. FULMER, Andalusia, Pa.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginner's outfit for stamp. THE DEROY TAYLOR CO., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 80 cts. Send for price list of queens, bees by the pound, and nucleus. Safe arrival and satisfaction guaranteed. M. BATES, Rt. 4, Greenville, Ala.

FOR SALE.—Three-banded, hardy, northern-bred Italian queens, bred from the best honey-gatherers obtainable. Untested, \$1.00; select tested with wing clipped, \$3.00; also Goldens and Carniolans at same prices. F. L. BARBER, Lowville, N. Y.

See our large advertisement elsewhere. Why pay more when you can get from us better queens for less money? We guarantee our queens to be as good as any produced North, South, East, or West. Try them. M. C. BERRY & Co., Hayneville, Ala.

Maine-reared Italian queens, leather-colored, gentle. Hardy, hustlers. Untested, 75 cts.; select untested, \$1.00; tested, \$1.25; select tested, \$1.50 to \$2.00. No disease. Satisfaction guaranteed.

A. J. SEAVEY, Rt. 2, Farmington, Maine.

FOR SALE.—250 colonies high-grade Italian bees in modern equipment for comb and extracted honey. A bargain if sold at once. Fine location and splendid opportunity for active party to enter the bee and honey business in this new country. Unlimited virgin pasture. A. W. F. LEE, Cordell, Okla.

Fine three-banded untested Italian queens, northern bred, each 80 cts.; ten for \$7.00; fifty for \$30. Safe delivery guaranteed. M. H. HUNT & SON, N. Cedar Ave., Lansing, Mich.

My Breeder, a daughter of one Dr. Miller's best queens, is proving superior to any I have been able to procure. Daughters of this queen, untested, 75 cts. each; \$8.00 per dozen. J. I. BANKS, Dowlstown, Tenn.

GOLDEN ITALIAN QUEENS.—Bred from a strain of great honey-gatherers, gentle and prolific. Untested, one, 75 cts.; 6, \$4.25; 12, \$8.00; 50, \$32.50; 100, \$60.00. All orders promptly filled and safe arrival guaranteed. L. J. PFEIFFER, Rt. 15, Los Gatos, Cal.

Choice Italian, Carniolan, or Caucasian queens; untested, 75 cts.; tested, \$1.25; breeding queens, \$2.50; virgins, 40 cts. each; 3 for \$1.00. Immediate delivery. C. W. FINCH, 1451 Ogden Ave., Chicago, Ill. Phone Haymarket 3384.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SONS, Wilcox St., Binghamton, N. Y.

Queens for requeening. Best on market. One untested, \$1.50; 12, \$12.00; one tested, \$2.00; 12, \$18.00; one select tested, \$3.00; 12, \$24.00. Special low price on 50 or more. Write. Safe delivery and satisfaction guaranteed. THE J. E. MARCHANT BEE & HONEY CO., Canton, Ohio.

The Stanley Improved Cell-starting Hive and Queen-rearing Outfit, complete, \$5.00. The same with a choice breeder, \$6.00. Warranted Italian queen, 60 cts. each. Tested, \$1.00. Virgin, 25 cts. Choice breeding queens, \$2.25. ARTHUR STANLEY, 1907 Washington Blvd., Chicago, Ill.

QUEENS.—From a strain of Italians, wintered for thirty years in the foothills of the Adirondack Mountains out of doors. Hardy, gentle, industrious, and fine resisters of disease. \$1.00 each, or \$9.00 per dozen; also nuclei and full colonies.

CHARLES STEWART, box 42, Johnstown, N. Y.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Rt. 3, Williamstown, Ky.

NOTICE TO HONEY-PRODUCERS.—We will send by return mail three-banded Italian queens at 50 cts. each. Lots of 25 or more, 45 cts. each. A choice lot of select tested at \$1.00 each; 25 or more, 75 cts. each. No disease. Safe arrival guaranteed.

MARCHANT BROS., Union Springs, Ala.

TENNESSEE-BRED QUEENS! My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

JOHN M. DAVIS, Spring Hill, Tenn.

Famous Howe's, Root's, Moore's, Davis' select strain of honey-gatherers, disease-resisting. None better for all purposes. Untested, one, 75 cts.; doz., \$7.50. Select untested, one, \$1.00; doz., \$9.00; ½ doz., \$5.00; tested, \$1.25; doz., \$10; select tested, one, \$1.50; ½ doz., \$8.00; extra select, \$2.00. Bees by the pound, \$2.50 with queen. Honey crop short. Will have plenty of bees in June.

H. B. MURRAY, Liberty, N. C.

THE BARGAIN OF THE SEASON.—Listen: *The Beekeepers' Review* for two years would be \$2.00; 10 three-banded Italian untested queens at 50 cts. would be \$5.00; total, \$7.00. Send us only \$5.00 and receive the *Review* for 1916, 1917, mailing you the back numbers for this year, and 10 untested Italian queens direct from our breeders in the South. Prompt delivery. To get this exceptional bargain, address all orders to THE BEEKEEPERS' REVIEW, Northstar, Mich.

FOR SALE.—Fine Italian queens, untested, 75 cts. each; or 6 for \$4.00; a few select tested, \$1.00 each. Bees and queens free all disease. Satisfaction guaranteed. EDW. A. REDDOUT, bx 43, Lysander, N.Y.

Leather-colored "Nutmeg strain" queens, \$1.00; \$10.00 per dozen. Tested, \$1.50. Special price on large lots by return mail.

A. W. YATES, 3 Chapman St., Hartford, Ct.

Will sell half-interest in 146 colonies bees and equipment. Good location, no disease, clover and basswood district; need man to take part to outyard. Must be of clean character—no tobacco nor liquor.

L. W. MAXWELL, Turkey River, Iowa.

FOR SALE.—Fifty colonies of bees in 10-frame L. hives, comb built on full foundation; 120 Danz, comb-honey supers; 1 Cowan 2-frame extractor; 8 Holtermann winter cases; a lot of bee-books, etc.

FRANCIS W. GRAVELY, Care Smithdeal Business College, Richmond, Va.

FOR SALE.—Three-banded Italian queens and bees from the best honey-gathering strains obtainable. Untested queen, 75 cts.; 6, \$4.25; 12, \$8.00; tested queens, \$1.25; 6, \$7.00; 12, \$12.00. For select queens, add 25 cts. each to the above prices. For queens in quantity lots, or bees by the pound, write for prices. ROBT. B. SPICER, Rt. 181, Wharton, N. J.

I am now breeding from one of Dr. C. C. Miller's world's record-breaking breeding queens, purchased by his instruction. Prices of her daughters, one, 75 cts.; 6, \$4.25; 12, \$8.00; 24, \$15.00; \$60.00 per 100. My own stock I've never seen better. 50 cts. each; \$45.00 per 100. Tested, \$1.00 each. Pure mating; no disease; safe arrival guaranteed.

CURD WALKER, Queen-breeder Jellico, Tenn.

PURE ITALIAN QUEENS.—Golden or three-banded by return mail. All queens are warranted purely mated. They are large and long lived. They have proven themselves highly disease-resistant in many localities. One select untested, \$1.00; 6, \$4.25; 12, \$8.00; 100, \$60.00. Tested, \$1.25. Bees by the pound, nuclei, colonies. Safe arrival and satisfaction I guarantee. Circular free.

J. E. WING, 155 Schiele Ave., San Jose, Cal.

### Special Notices by A. I. Root

#### GOOD BOOKS FOR A SMALL AMOUNT OF MONEY.

Some thirty years ago we sold hundreds of copies of Pilgrim's Progress. The edition we had contained 384 pages, with illustrations all thru. The book is nicely bound, and makes a beautiful present. But because it was published so long ago we offer it now for only 50 cents; by mail, 60. My impression is that it was originally a \$2.00 book. We have only seven copies left.

Pilgrim's Progress was first published about 260 years ago, and has been translated into more languages than any other volume, the Bible alone excepted; and probably no other book (the Bible again excepted) has done more to keep alive the true spirit of Christianity than this wonderful allegory. The variety of characters Bunyan introduces with such vividness surpasses that in any other volume of human production. No person can be said to have read the Bible without having read this ever interesting volume; and one who has not read it is certainly greatly lacking in a knowledge of English literature.

### HONEY AT THE BIG FAIRS

#### MISSOURI STATE FAIR.

Note.—Exhibits must be in place by 6 o'clock P. M., Friday, September 22, and must have been produced in the apiary of the exhibitor.

All extracted honey must be exhibited in glass receptacles.

Class	1st	2d	3d
1 Case 12 sections honey from fall flowers .....	\$ 6.00	\$3.50	
2 Case 12 sections white clover or linden honey .....	6.00	3.50	
3 Largest display comb honey, not including the above...	10.00	6.00	\$3.00
4 20 pounds extracted clover or linden honey .....	6.00	3.50	
5 20 pounds extracted honey fall flowers .....	6.00	3.50	
6 Largest display of extracted honey, not including above	10.00	6.00	3.00
7 10 pounds beeswax .....	3.00	2.00	
8 Display of beeswax, not less than 20 pounds, not including the above .....	7.00	4.00	2.00
9 Most attractive display of comb and extracted honey, wax, bees, and implements, not including any of the above .....	15.00	8.00	4.00
10 Golden Italian bees and queen in single-comb observatory hive .....	6.00	4.00	2.50
11 Three-banded Italian bees and queen in single-comb observatory hive .....	6.00	4.00	2.50
12 Most attractive comb of sealed honey in large or half-depth frame .....	3.00	2.00	

#### COLORADO STATE FAIR.

F. C. Burfield, Rocky Ford, Superintendent.

1. Goods properly labeled may be sent by express prepaid to the secretary of the fair.

2. Entries close Monday, September 18.

3. All exhibits must be in place by 5 P. M., Monday, September 18, 1916.

4. The judges will award the premiums in this Department Tuesday, September 19, at 9 A. M.

5. No article on exhibition can be removed until the close of the fair.

All honey and beeswax must be Colorado products.

1 Italian bees and queen in single-comb observatory hives	\$6.00	\$4.00	Ribbon
2 Carniolan bees and queen in single-comb observatory hives .....	3.00	2.00	Ribbon
3 Caucasian bees and queen in single-comb observatory hive .....	3.00	2.00	Ribbon
4 Largest and best display of bees of various races in observatory hives .....	6.00	4.00	Ribbon
5 Largest display of queens of various races in mailing-cages .....	3.00	1.00	Ribbon
6 Best case white comb honey	4.00	2.00	Ribbon
7 Best case of light-amber comb honey .....	4.00	2.00	Ribbon
8 Best and largest display of comb honey .....	6.00	4.00	Ribbon
9 Best display of special designs .....	6.00	4.00	Ribbon
10 Best dozen jars of white extracted honey .....	2.00	1.00	Ribbon
11 Best dozen jars of light-amber extracted honey ...	3.00	2.00	Ribbon
12 Best and largest display of extracted honey .....	5.00	3.00	Ribbon
13 Best display of extracted honey in granulated form	3.00	2.00	Ribbon
14 Best 10 lbs. yellow beeswax	2.00	1.00	Ribbon
15 Best and largest display of beeswax .....	4.00	2.00	Ribbon
16 Best display of special designs in beeswax .....	4.00	2.00	Ribbon
17 Best display of honey-producing plants, mounted.	2.00	1.00	Ribbon
18 Best display of fruits preserved in honey .....	2.00	1.00	Ribbon
19 Most instructive display of apian products and of the various uses made of honey and beeswax....	15.00	8.00	Ribbon



SPECIAL PREMIUMS.

The Board of County Commissioners of Pueblo County offer the following premiums for products of bees owned in Pueblo County:

20 Dozen jars white extracted honey..	\$2.00	\$1.00
21 Display extracted honey .....	4.00	2.00

VERMONT STATE FAIR.

September 12, 13, 14, 15.

37 Best display of bees and honey .....	\$6.00	\$4.00	\$2.00
38 Sample of honey, 3 pounds or more .....	3.00	2.00	1.00
39 Best extracted honey, in glass, 3 pounds or more .....	3.00	2.00	1.00
40 Display of honey, granulated or candied .....	4.00	2.00	1.00
41 White-clover honey, not less than 3 pounds .....	3.00	2.00	1.00

BURLINGTON (IOWA) TRI-STATE FAIR.

1211 Display of comb honey, quality, quantity, and manner of putting up for market considered .....	\$5.00	\$3.00	\$2.00
1212 Display of extracted honey, quality, quantity, and manner of putting up for market considered .....	5.00	3.00	2.00
1213 Display of beeswax, quantity and quality to be considered .....	3.00	2.00	1.00
1214 Honey vinegar, not less than one gallon, in glass .....	5.00	3.00	2.00
1215 One-frame observatory hive Italian bees, showing queen, workers, and brood in all stages .....	10.00	8.00	6.00

Demonstration by W. F. Reppert.

# Your Honey Crop

Depends on Your Interest in Bees

The greater the interest, the greater the crop. Increase your interest by studying what happens in the egg. Here the individual bee begins life.

## The Embryology of the Honey Bee

By Dr. Jas. A. Nelson

Price \$2.00 prepaid

Clubbed with "Cleanings" one year, \$2.75

THE A. I. ROOT COMPANY

Address the Medina Office

# 60-lb. Honey-Cans

Good second-hand, fit to refill with honey for use again. . .

For shipment from New York, Philadelphia, or Medina, while stock lasts, 10 cases, two 60-lb. cans, \$4.00; 25 cases, \$8.50; 100 cases, \$30, delivered on cars or boat. These cans have been used once for honey and emptied, leaving a film of honey adhering to the inside, protecting the tin from rust. Well worth the price to anyone in need of cans. Send orders to

The A. I. Root Company

New York Philadelphia Medina, Ohio

# QUEENS

Our July, August, and September SPECIAL PRICE on untested leather-colored queens--- a bargain never offered to the American beekeeper before.

Prices on	1 to	10 queens,	50 cts. each
"	11 to	25 queens,	45 cts. each
"	26 to	100 queens,	40 cts. each
"	101 to	1000 queens,	38 cts. each

Safe delivery. If not satisfied, return queens and get your money back. The Root Company, The American Bee Journal. Dadant & Sons, any mercantile agency, and others will tell you who we are.

The Penn Company . . Penn, Miss.

## TRADE NOTES

### BEESWAX MARKET.

There is an improved export demand for beeswax which warrants our increasing our price to the rate prevailing before the last drop—namely, 28 cents cash, 30 cts. trade delivered at Medina, New York, or Philadelphia. If you have a supply available, now is a good time to convert it into money or goods.

### CHIPPED TUMBLERS CHEAP.

We again have a supply of two or three hundred cases of 2 dozen each of tin-top tumblers holding 6½ oz. of honey, or ¼ lb. of jelly. They have the edges slightly chipped so they cannot be sealed airtight for shipping, but will serve as a cheap container for some uses. We offer them, while they last, at \$2.00 for ten cases of 2 dozen each, including the tin tops.

### METAL-TOP COVERS ADVANCED IN PRICE.

The increased cost of galvanized sheet metal has made it necessary to mark up the price on all metal-top hive-covers, and all hives equipped with them, 5 cents each. This applies to such covers in our catalog as are listed under the letters R, K, and Y, both eight-frame and ten-frame. This advance applies to retail, wholesale, and jobbing prices.

### SQUARE TIN CANS.

The greatly advanced prices on tin plate will make higher prices on square tin cans imperative when next catalog is printed. On such stock as we buy now at distant points where we are not covered by a contract we have to pay prices which are more than 20 per cent higher than we paid last winter. We can continue the old prices for the present from Medina only, because we have a good supply bought at old prices. The new prices effective now from our branch offices and agents, except as shipment is made from Medina, are as follows:

5-gal. square cans, 1 in box, 60c; 10 boxes, \$5.50.  
5-gal. square cans, 2 in box, 90c; 10 boxes, \$8.50.  
5-gal. sq. cans, 27 to crate without boxes, 30c each.  
1-gal. sq. cans, 10 in a box, \$1.70; 10 boxes, \$16.  
1-gal. square cans, 100 to a crate, \$12.00 per 100.  
½-gal. sq. cans, 12 in a box, \$1.70; 10 boxes, \$16.  
½-gal. square cans, 100 to a crate, \$10.00 per 100.  
¼-gal. sq. cans, 24 to a box, \$2.60; 10 boxes, \$25.  
¼-gal. square cans, 100 to a crate, \$9.00 per 100.

### BUSHEL BOXES.

We have on hand, ready for immediate shipment, a good stock of these boxes, packed as shown in catalog. They are made with oak corner posts and bottom end slats to receive the nails, the remainder of the box being basswood. They are very convenient, and popular for handling potatoes, apples, onions, and other farm crops. They hold a heaped bushel level full, so they can be stacked any height desired. To reduce stock we offer them for a short time at the following special prices:

All slatted bushel boxes, per crate of 14, \$2.25  
Slatted bushel boxes, per crate of 12, \$2.10  
Galvanized bound boxes, per crate of 12, \$2.75.

In lots of 10 crates or more, 5 per cent discount.  
The all-slatted is the cheapest, and the most popular style. Two are nailed in each package, and sufficient nails are included for the remainder.

### EARLY-ORDER CASH DISCOUNT.

The usual custom of allowing a discount for early cash orders for goods for next season's use is continued this season. The discount begins with 5 per cent for September cash orders instead of 7, which was given in former years. The discount applies to the latest revised prices with the usual exceptions on certain classes of goods. No discount will apply on orders for shipping-cases, cartons, labels, tin and glass honey-packages, bees, queens, paint, bushel-boxes, hotbed sash, seeds, honey, and printed matter.

Where goods named in the list of exceptions form not more than 20 per cent of a general order for hives and other beekeepers' supplies, the discount may be taken on the entire order. The discount is allowed only for payment of cash during the month of September, whether goods are shipped or not. For payment in October the discount will be 4 per cent; during November, 3 per cent; during December, 2 per cent.

THE A. I. ROOT CO., MEDINA, O.

## Be Efficient in BEE CULTURE

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

- ☐ THE DEVELOPMENT OF THE APPLE FROM THE FLOWER. By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.
- ☐ MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By "The Spectator," of the *Outlook*. A leaflet humorously detailing the satisfaction of beekeeping. Free.
- ☐ CATALOG OF BEEKEEPERS' SUPPLIES. Our new complete catalog, mailed free to any address on request.
- ☐ THE BEEKEEPER AND FRUIT-GROWER. Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.
- ☐ SPRING MANAGEMENT OF BEES. The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.
- ☐ THE USE OF HONEY IN COOKING. Just the thing for the up-to-date housewife. Price 10 cents.
- ☐ BEES AND POULTRY, how they work together profitably for others—why not for you? Some valuable pointers on hens and honeybees. Free.
- ☐ HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- ☐ THE ABC OF BEE CULTURE. A standard encyclopedia on bees. The largest and most complete published anywhere. 712 pages, fully illustrated. \$2.00 postpaid.
- ☐ WINTERING BEES. A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cents.
- ☐ THE BUCKEYE HIVE, or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.
- ☐ SWEET CLOVER, the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.
- ☐ ADVANCED BEE CULTURE. A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth. \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

The A. I. Root Company, Medina, Ohio.

Please send me the items checked above.

I enclose \$..... to cover the cost.

Name .....

Street Address or R. F. D. ....

Town .....

State .....